
Appendix for the Report

Dosimetric Assessment of the Siemens S56 (FCC ID: PWX-S56) According to the FCC Requirements

SAR Distribution Plots

December 02, 2002
IMST GmbH
Carl-Friedrich-Gauß-Str. 2
D-47475 Kamp-Lintfort

Customer
Siemens Information & Communication Mobile LLC
16745 West Bernado Drive, Suite 400
San Diego-CA 92127

The test results only relate to the items tested.
This report shall not be reproduced except in full without the written
approval of the testing laboratory.

Table of Contents

1	SAR DISTRIBUTION PLOTS, TEST SIDE AMBIENT CONDITIONS.....	3
2	SAR DISTRIBUTION PLOTS, GSM 850.....	7
3	SAR DISTRIBUTION PLOTS, PCS1900	19
4	SAR Z-AXIS SCANS (VALIDATION)	32
5	SAR Z-AXIS SCANS (MEASUREMENTS)	36

1 SAR Distribution Plots, Test side ambient conditions.

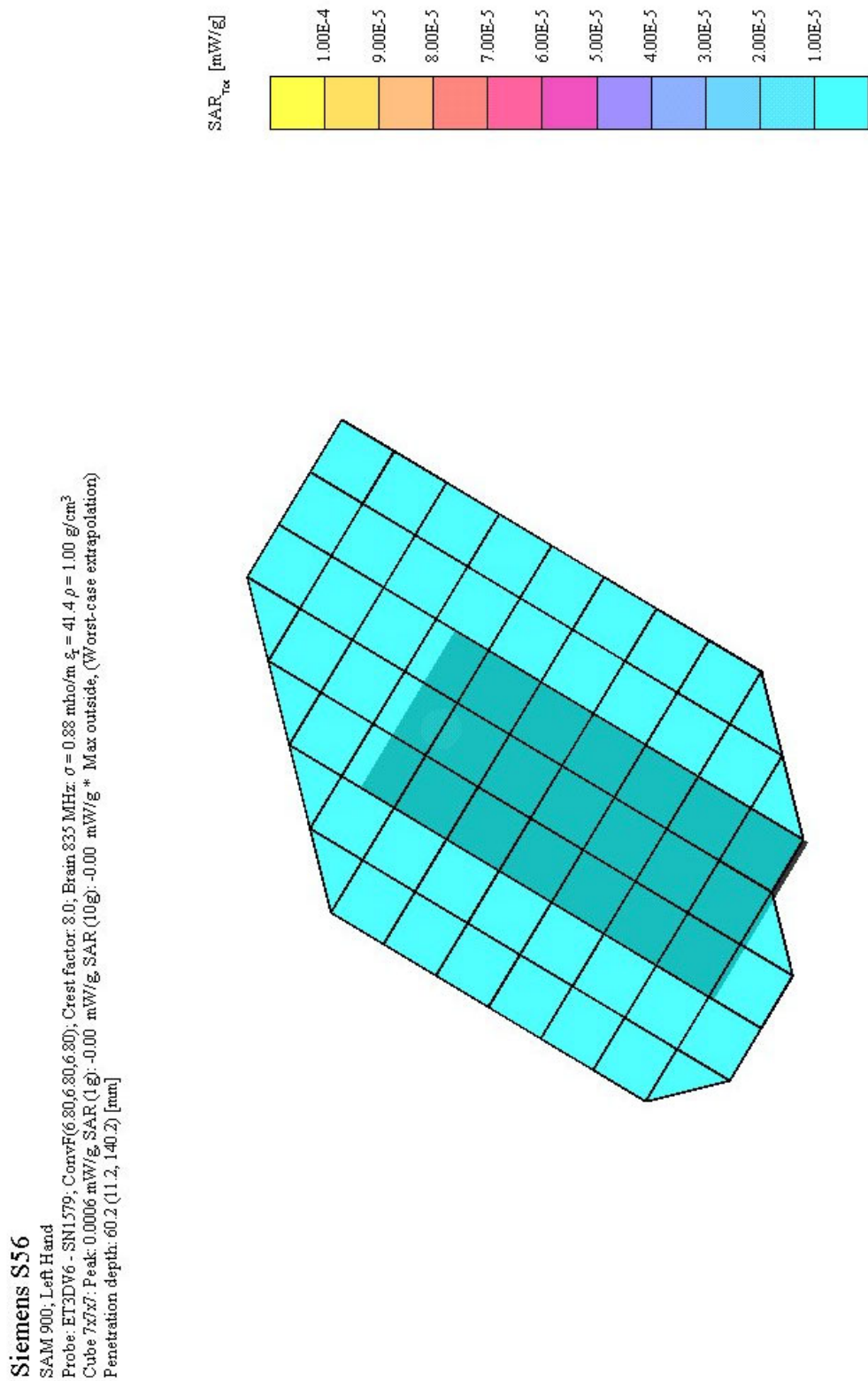


Fig. 1: Test side ambient measurements, 835 MHz, head position.

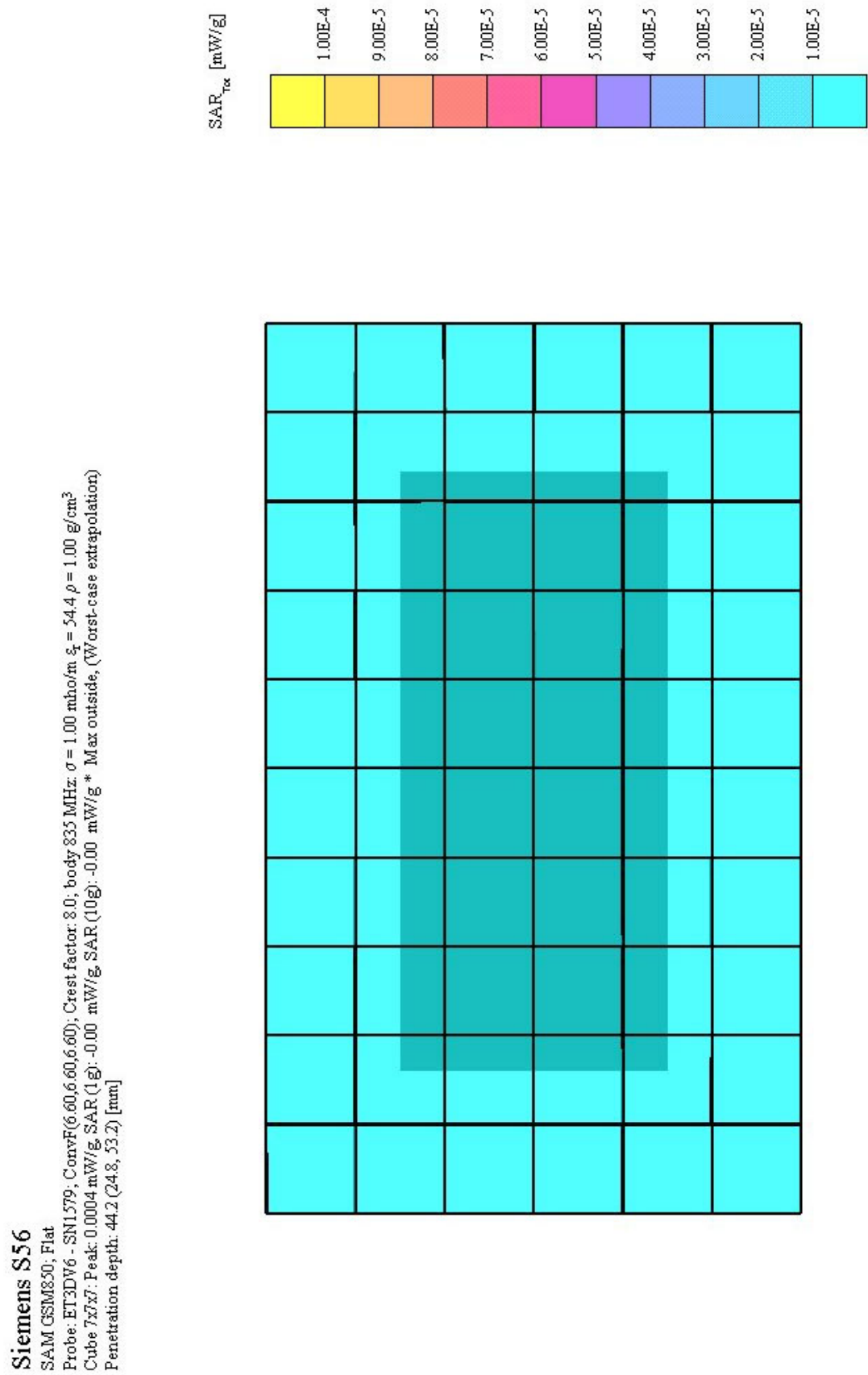


Fig. 2: Test side ambient measurements, 835 MHz, body worn position.

Siemens S56
SAM1800; Right Hand
Probe: ET3DV6 - SN1579; ConvF(5 20,5 20,5 20); Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.43$ mho/m $\epsilon_r = 39.4$ $\rho = 1.00$ g/cm³
Cube 7x7x7: Peak: 0.0007 mW/g SAR (1g): -0.00 mW/g SAR (10g): -0.00 mW/g * Max outside, (Worst-case extrapolation)
Penetration depth: 76.3 (11.8, 514.0) [mm]

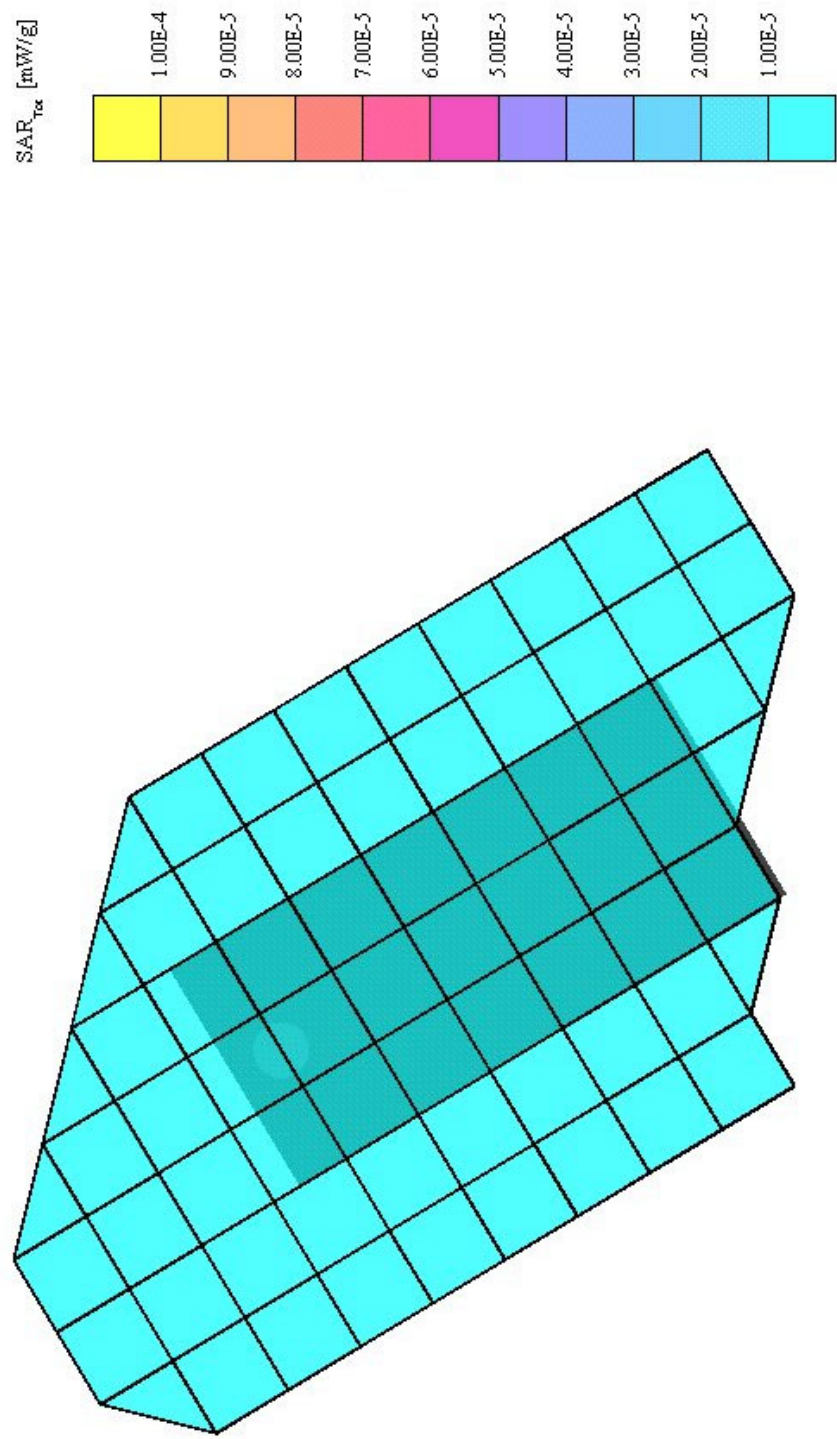


Fig. 3: Test side ambient measurements, 1900 MHz, head position.

Siemens S56

SAM1800; Flat

Probe: ET3DV6 - SN1579; ConvF(480,480,480); Crest factor: 8.0; body 1900 MHz: $\sigma = 1.54 \text{ mho/m}$, $\epsilon_r = 51.8$, $\rho = 1.00 \text{ g/cm}^3$

Cube 7x7x7; Peak: 0.0008 mW/g; SAR (1 g): -0.00 mW/g; SAR (10 g): -0.00 mW/g; (Worst-case extrapolation)

Penetration depth: 42.3 (11.6, 238.7) [mm]

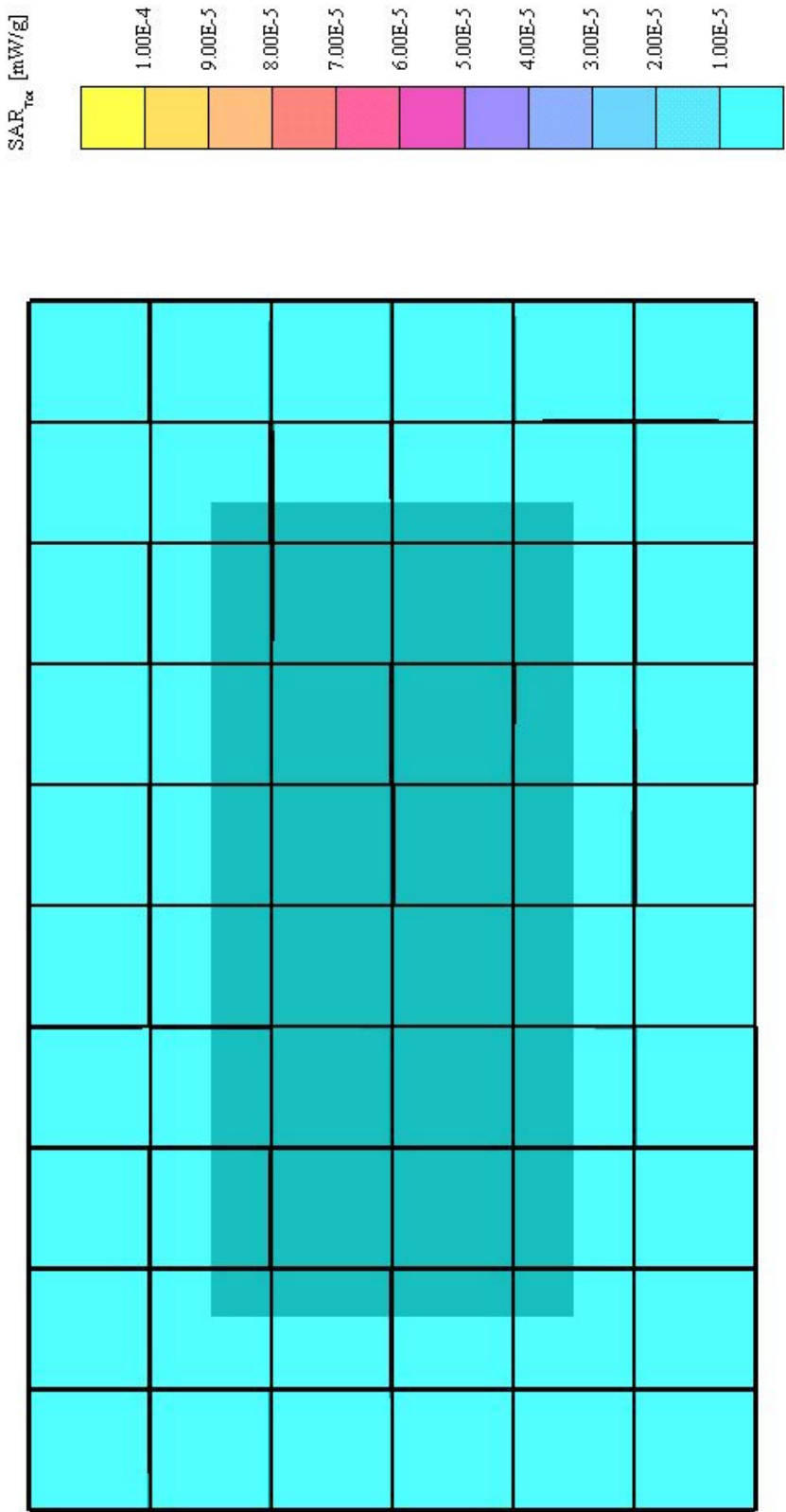


Fig. 4: Test side ambient measurements, 1900MHz, body worn position.

2 SAR Distribution Plots, GSM 850

Since the SAR distribution is similar for the different channels, only the worst case plots were shown for the different positions.

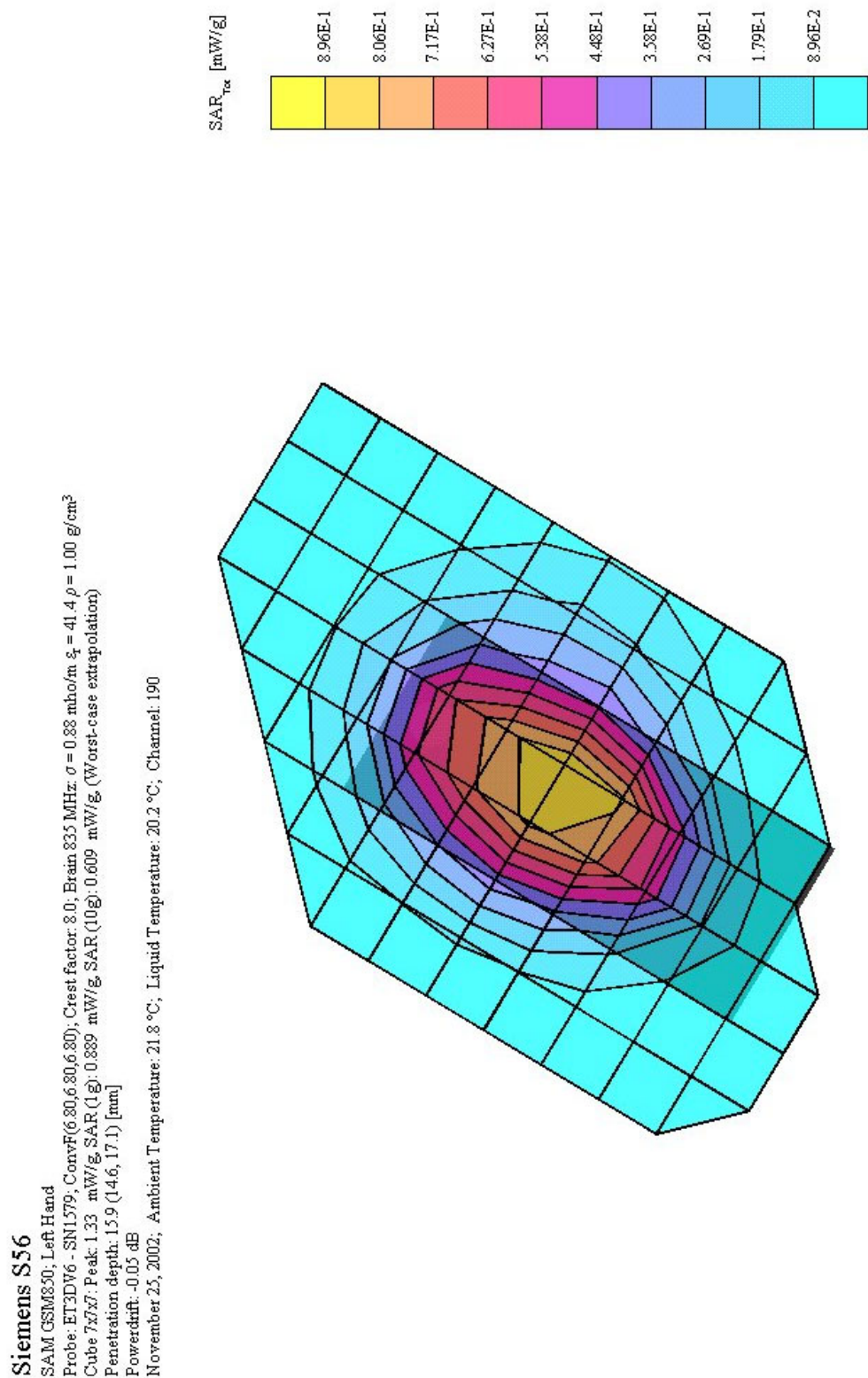


Fig. 5: Worst Case SAR distribution, GSM850, channel 190, cheek position, left side of head.

Siemens S56

SAM GSM850; Left Hand

Probe: ET3DV6 - SN1579; ConvF(6.80,6.80,6.80); Crest factor: 8.0; Brain 835 MHz: $\sigma = 0.88$ mho/m $\epsilon_r = 41.4$ $\rho = 1.00$ g/cm³

Cube 7x7x7: Peak: 0.915 mW/g SAR(1g): 0.607 mW/g SAR(10g): 0.400 mW/g (Worst-case extrapolation)

Penetration depth: 13.5 (12.2, 14.9) [mm]

Powerdrift: -0.03 dB

November 25, 2002; Ambient Temperature: 21.9 °C; Liquid Temperature: 20.1 °C; Channel: 190

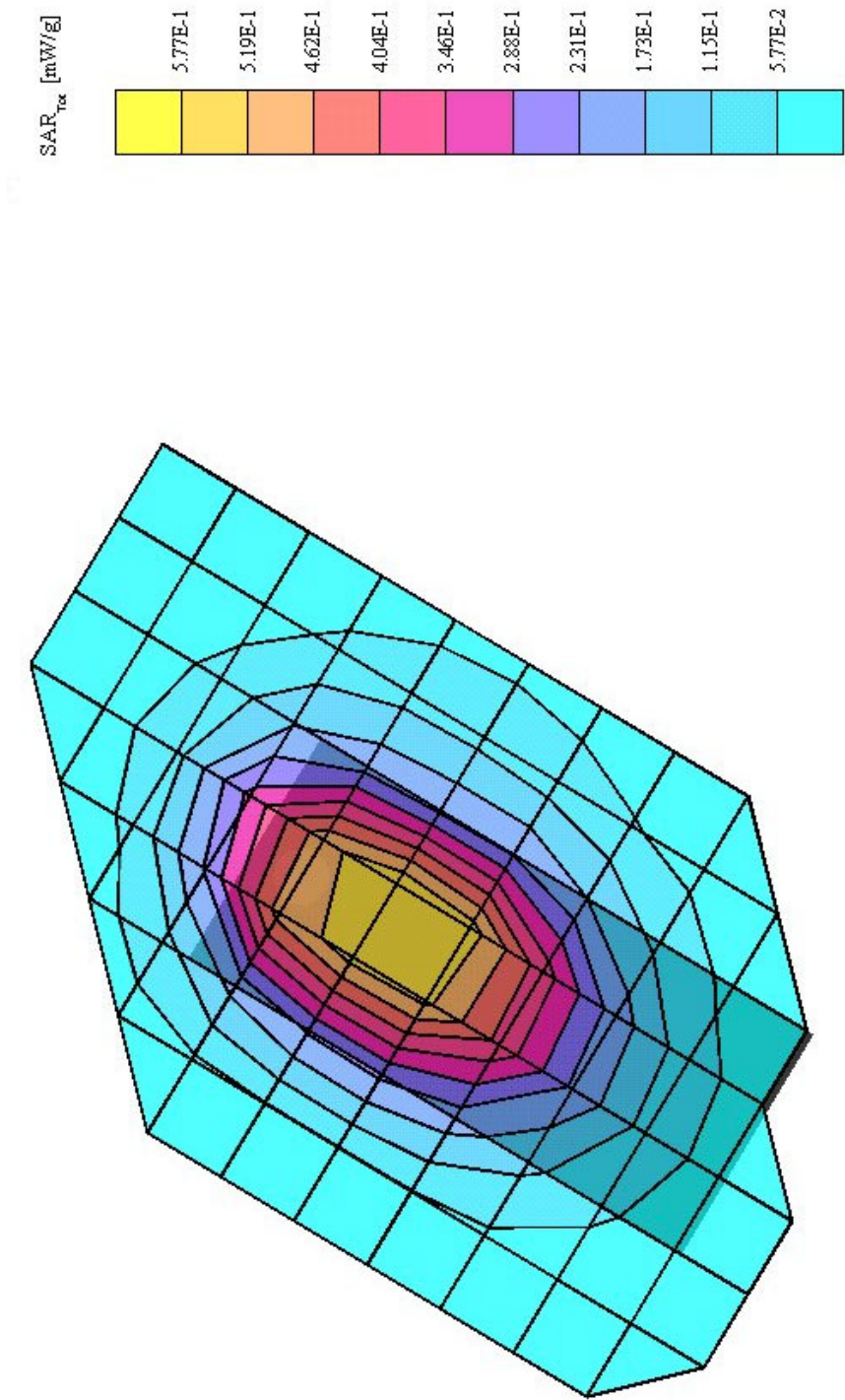


Fig. 6: SAR distribution, GSM850, channel 190, tilted position, left side of head.

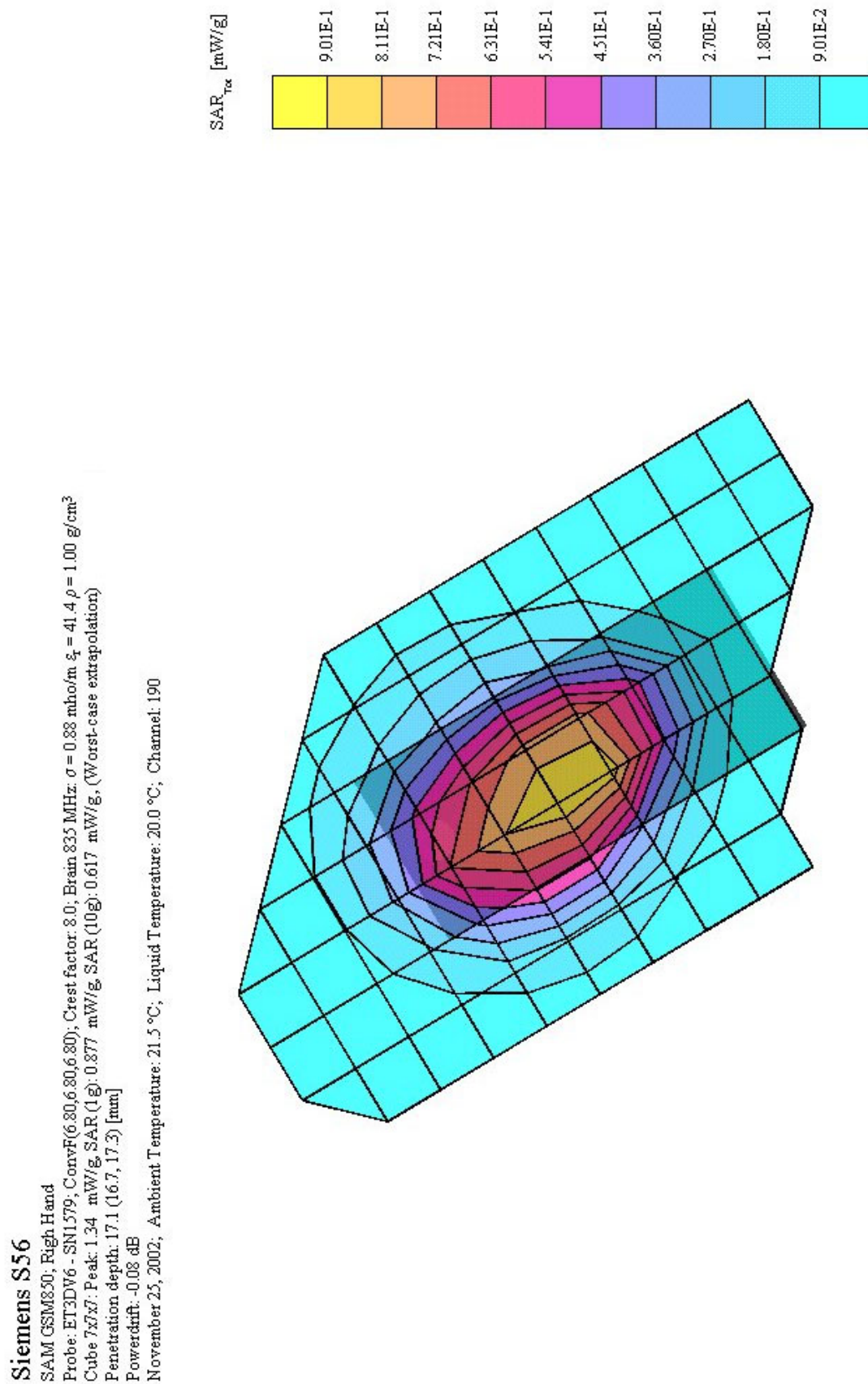


Fig. 7: SAR distribution, GSM850, channel 190, cheek position, right side of head.

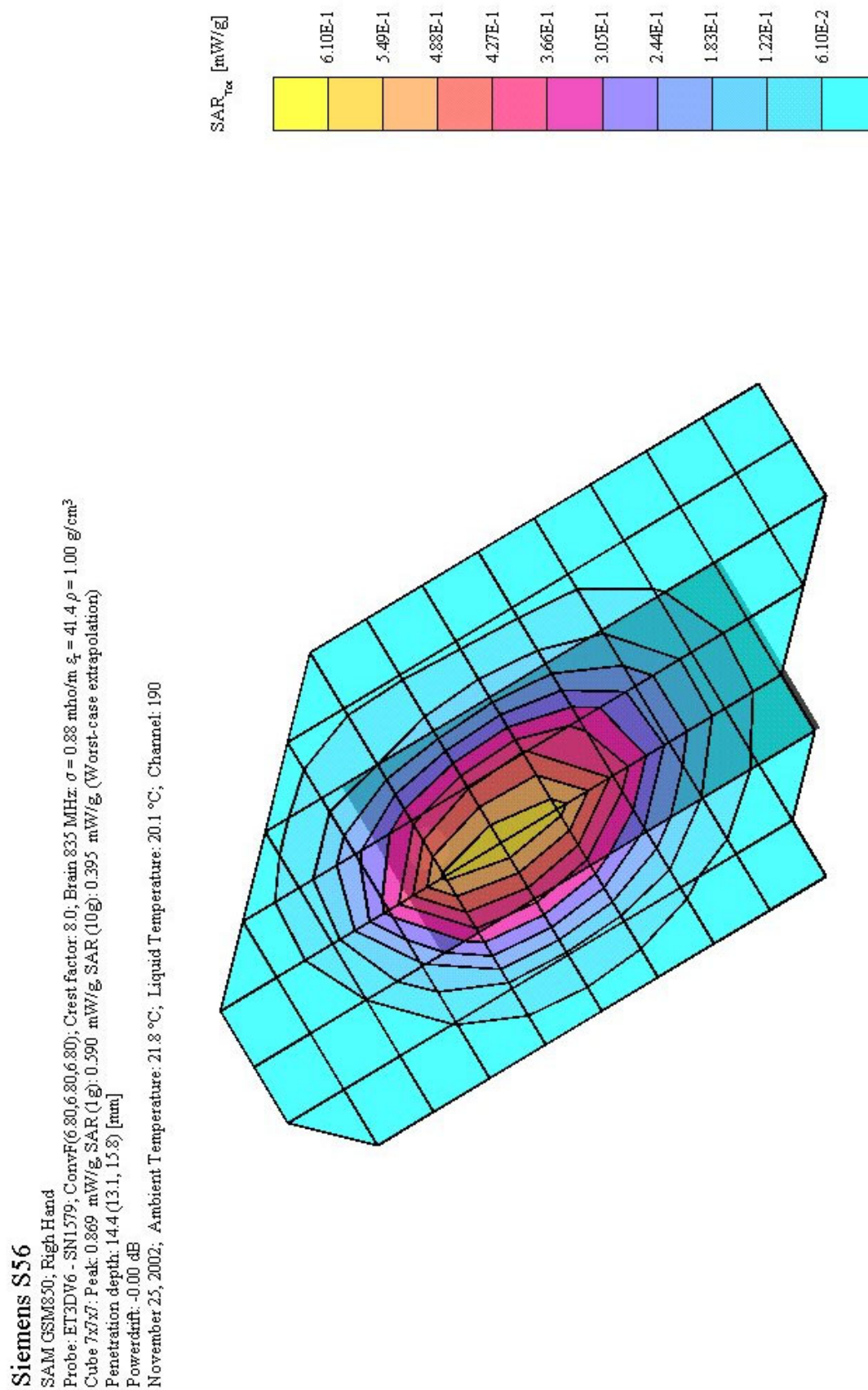


Fig. 8: SAR distribution, GSM850, channel 190, tilted position, right side of head.

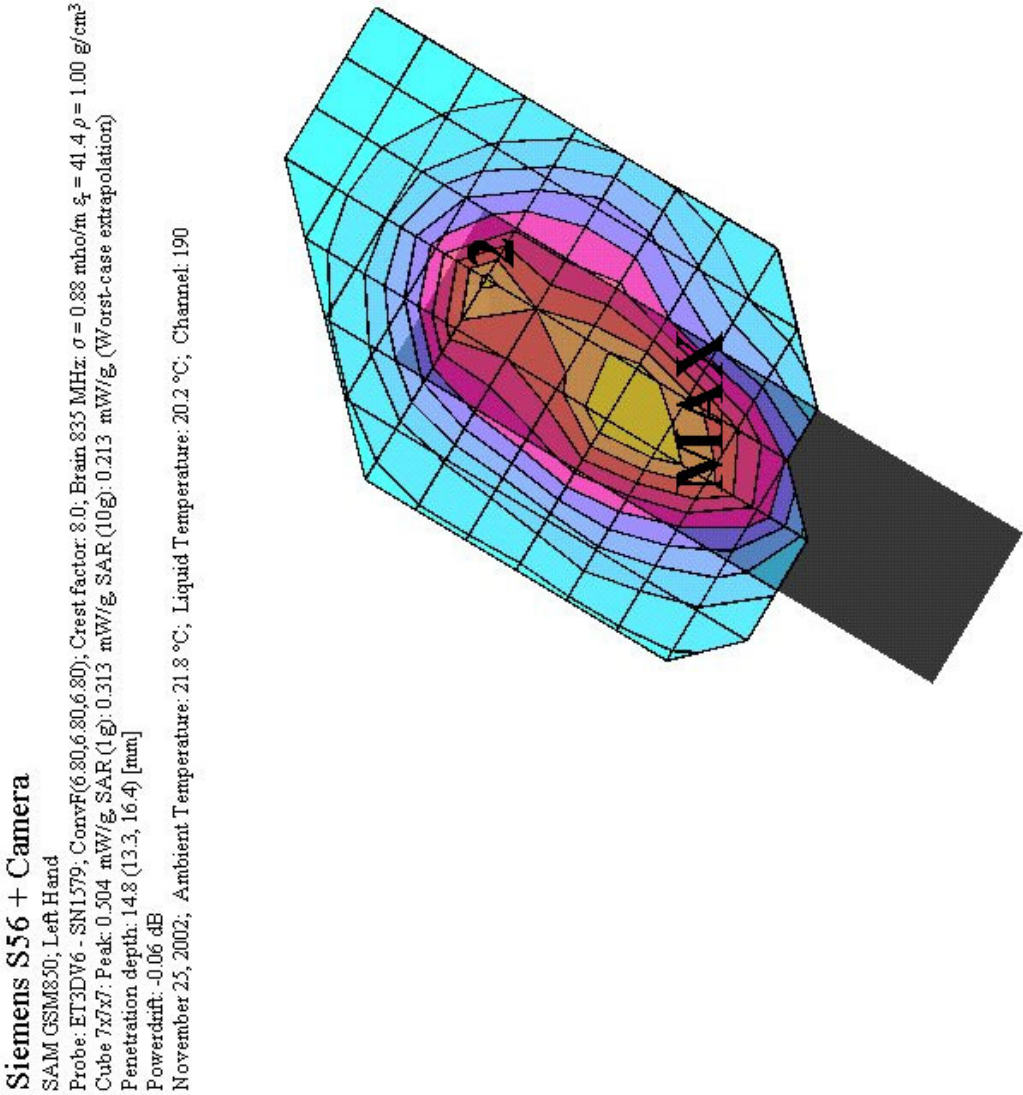


Fig. 9: SAR distribution, GSM850 with QuickPic Camera, channel 190, cheek position, left side of head, Cube 2: 0.270 W/kg.

Siemens S56

SAM GSM850; Left Hand

Probe: ET3DV6 - SN1579; ConvF(6.80,6.80); Crest factor: 8.0; Brain 835 MHz: $\sigma = 0.88$ mho/m $\epsilon_r = 41.4$ $\rho = 1.00$ g/cm³

Cube 7x7x7: Peak: 0.434 mW/g, SAR (1 g): 0.215 mW/g, SAR (10g): 0.110 mW/g (Worst-case extrapolation)

Penetration depth: 7.9 (7.0, 9.8) [mm]

Powerdrift: -0.00 dB

November 25, 2002; Ambient Temperature: 21.9 °C; Liquid Temperature: 20.1 °C; Channel: 190

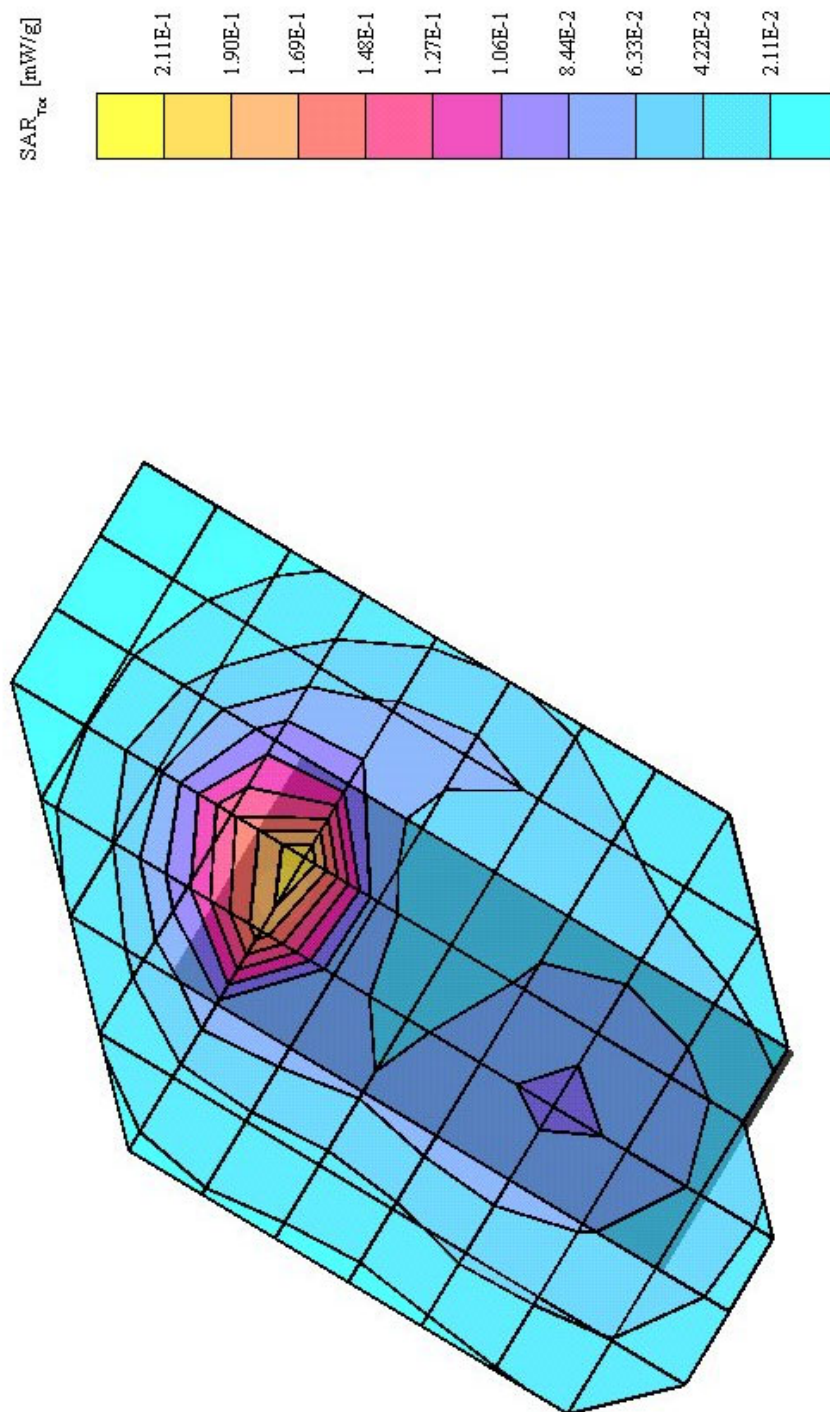


Fig. 10: SAR distribution with QuickPic Camera, GSM850, channel 190, tilted position, left side of head.

Siemens S56 + Camera

SAM GSM850; Right Hand
Probe: ET3DV6 - SN1579; ConvF(6.80,6.80); Crest factor: 8.0; Brain 835 MHz; $\sigma = 0.88$ mho/m $\epsilon_r = 41.4$ $\rho = 1.00$ g/cm³
Cube 7x7x7: Peak: 0.527 mW/g, SAR (1g): 0.329 mW/g, SAR (10g): 0.226 mW/g * Max outside, (Worst-case extrapolation)
Penetration depth: 15.2 (14.0, 16.6) [mm]
Powerdrift: 0.05 dB
November 25, 2002; Ambient Temperature: 21.5 °C; Liquid Temperature: 20.1 °C; Channel: 190

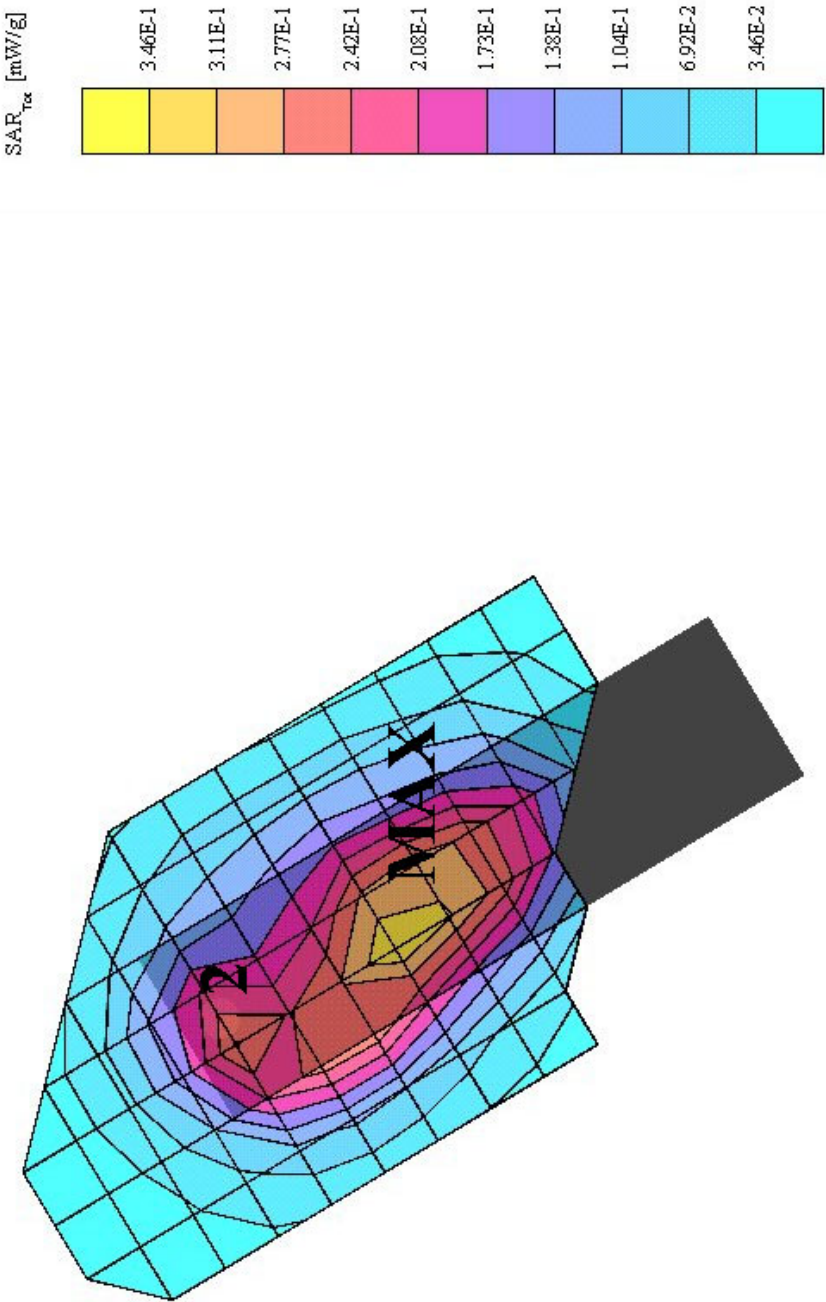


Fig. 11: SAR distribution with Camera, GSM850, channel 190, cheek position, right side of head, Cube 2: 0.286 W/kg.

Siemens S56 + Camera

SAM GSM850; Right Hand

Probe: ET3DV6 - SN1579; ConvF(6.80,6.80); Crest factor: 8.0; Brain 835 MHz; $\sigma = 0.88$ mho/m $\epsilon_r = 41.4$ $\rho = 1.00$ g/cm³

Cube 7x7x7; Peak: 0.461 mW/g; SAR (1g): 0.220 mW/g; SAR (10g): 0.110 mW/g; SAR (Worst-case extrapolation)

Penetration depth: 7.6 (6.7, 9.5) [mm]

Powerdrift: -0.00 dB

November 25, 2002; Ambient Temperature: 21.8 °C; Liquid Temperature: 20.1 °C; Channel: 190

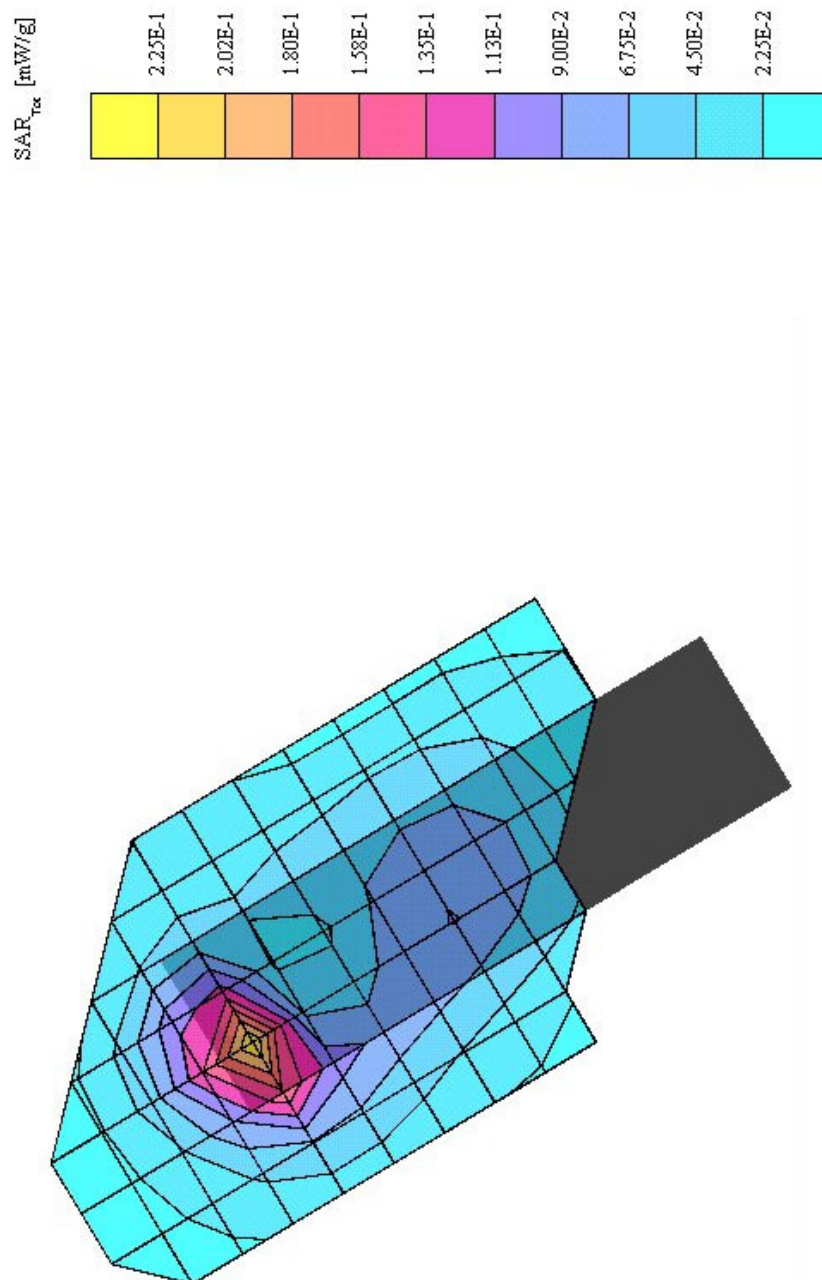


Fig. 12: SAR distribution with QuickPic Camera, GSM850, channel 190, tilted position, right side of head.

Siemens S56

SAM GSM850; Flat

Probe: ET3DV6 - SN1579; ConvF(6.60,6.60,6.60); Crest factor: 8.0; body 835 MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 54.3$ $\rho = 1.00$ g/cm³

Cube 7x7x7; Peak: 0.467 mW/g; SAR(1g): 0.324 mW/g; SAR(10g): 0.225 mW/g; (Worst-case extrapolation)

Penetration depth: 15.0 (13.7, 16.3) [mm]

Powerdft: -0.05 dB

November 29, 2002; Ambient Temperature: 21.5 °C; Liquid Temperature: 20.3 °C; Channel: 190

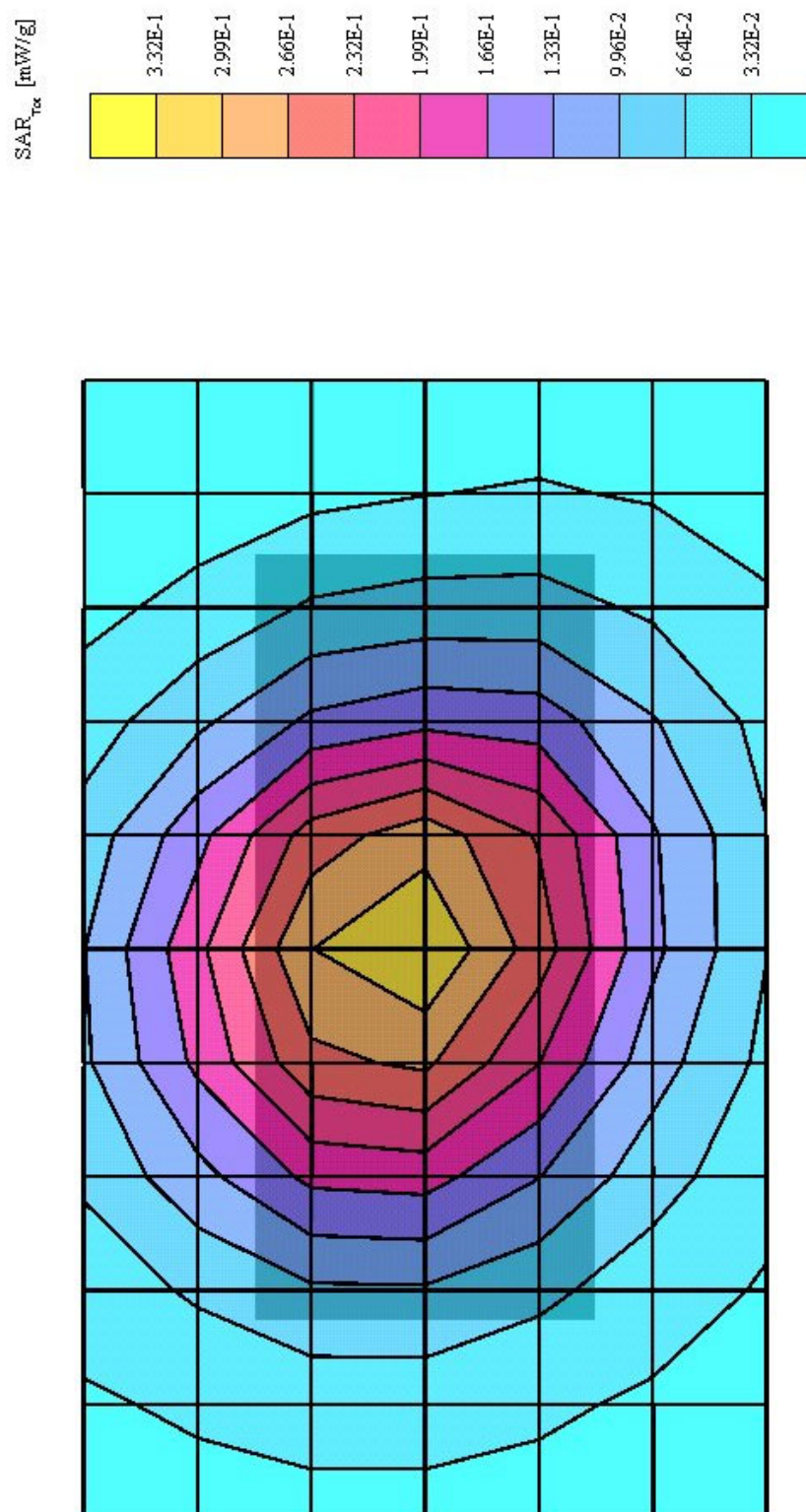


Fig. 13: SAR distribution, GSM850, channel 190, body worn configuration, Belt Clip without Headset.

Siemens S56

SAM GSM850; Flat

Probe: ET3DV6 - SN1579; ConvF(6.60,6.60,6.60); Crest factor: 8.0; body 835 MHz: $\sigma = 1.01$ mho/m $\epsilon_r = 54.3$ $\rho = 1.00$ g/cm³

Cube 7x7x7: Peak: 0.330 mW/g SAR (1 g): 0.233 mW/g SAR (10 g): 0.163 mW/g (Worst-case extrapolation)

Penetration depth: 15.1 (14.6, 15.8) [mm]

Powerdrift: -0.02 dB

November 29, 2002; Ambient Temperature: 21.8 °C; Liquid Temperature: 20.3 °C; Channel: 190

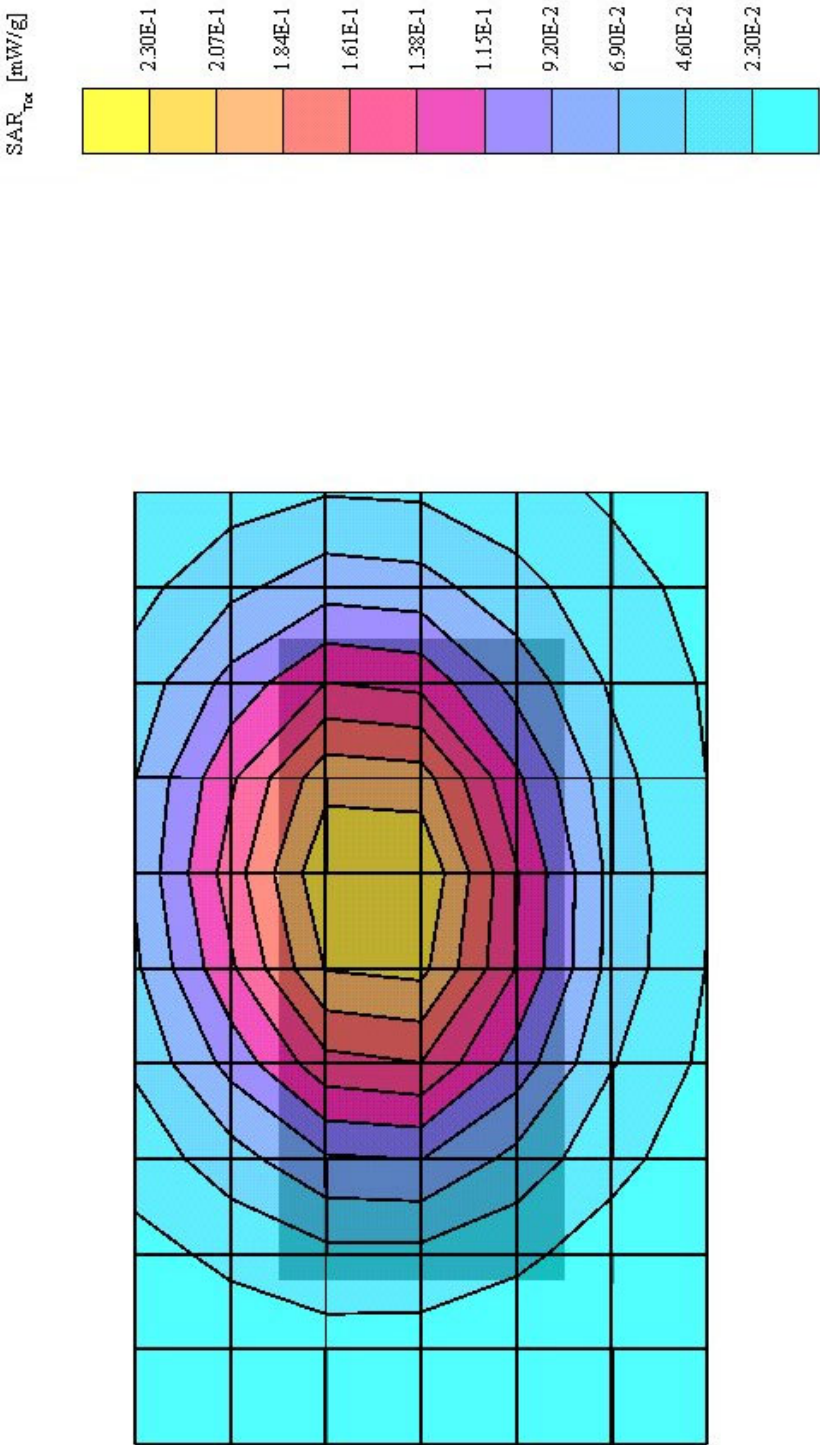


Fig. 14: SAR distribution, GSM850, channel 190, body worn configuration, Tour Case without Headset.

Siemens S56

SAM GSM850; Flat

Probe: ET3DV6 - SN1579, ConvF(6.60,6.60,6.60); Crest factor: 8.0; body 835 MHz: $\sigma = 1.01$ mho/m $\epsilon_r = 54.3$ $\rho = 1.00$ g/cm³

Cube 7x7x7: Peak: 0.336 mW/g, SAR (1g): 0.234 mW/g, SAR (10g): 0.163 mW/g, (Worst-case extrapolation)

Penetration depth: 15.2 (13.8, 16.5) [mm]

Powerdrift: -0.02 dB

November 29, 2002; Ambient Temperature: 21.9 °C; Liquid Temperature: 20.3 °C; Channel: 190

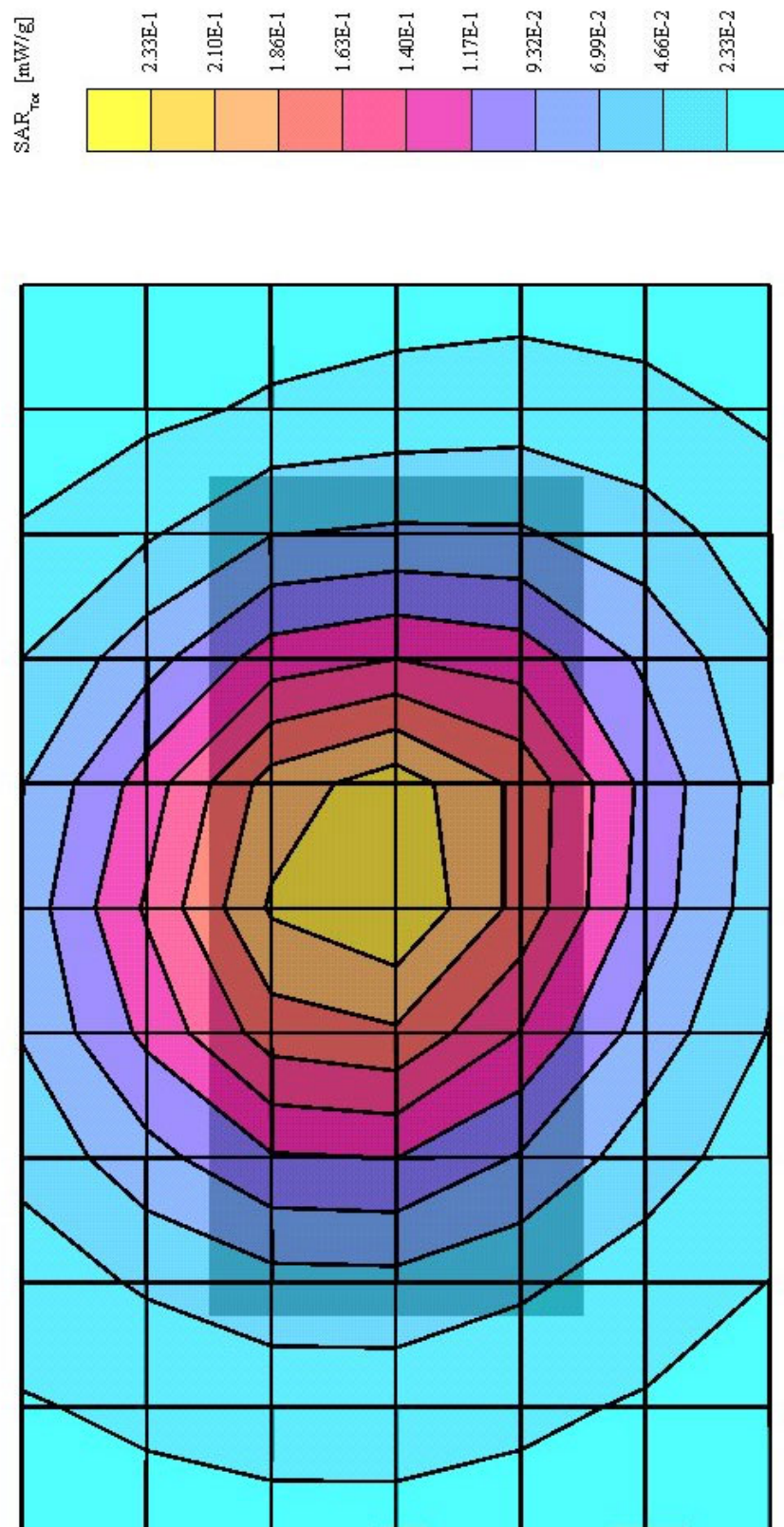


Fig. 15: SAR distribution, GSM850, channel 190, body worn configuration, Leather Case Display down.

Siemens S56

SAM GSM850; Flat

Probe: ET3DV6 - SN1579, ConvF(6.60,6.60,6.60); Crest factor: 8.0; body 835 MHz: $\sigma = 1.01$ mho/m $\epsilon_r = 54.3$ $\rho = 1.00$ g/cm³

Cube 7x7x7; Peak: 0.460 mW/g SAR (1g) 0.323 mW/g SAR (10g) 0.224 mW/g SAR (10g) (Worst-case extrapolation)

Penetration depth: 15.1 (14.3, 15.9) [mm]

Powerdrift: -0.02 dB

November 29, 2002; Ambient Temperature: 21.5 °C; Liquid Temperature: 20.3 °C; Channel: 190

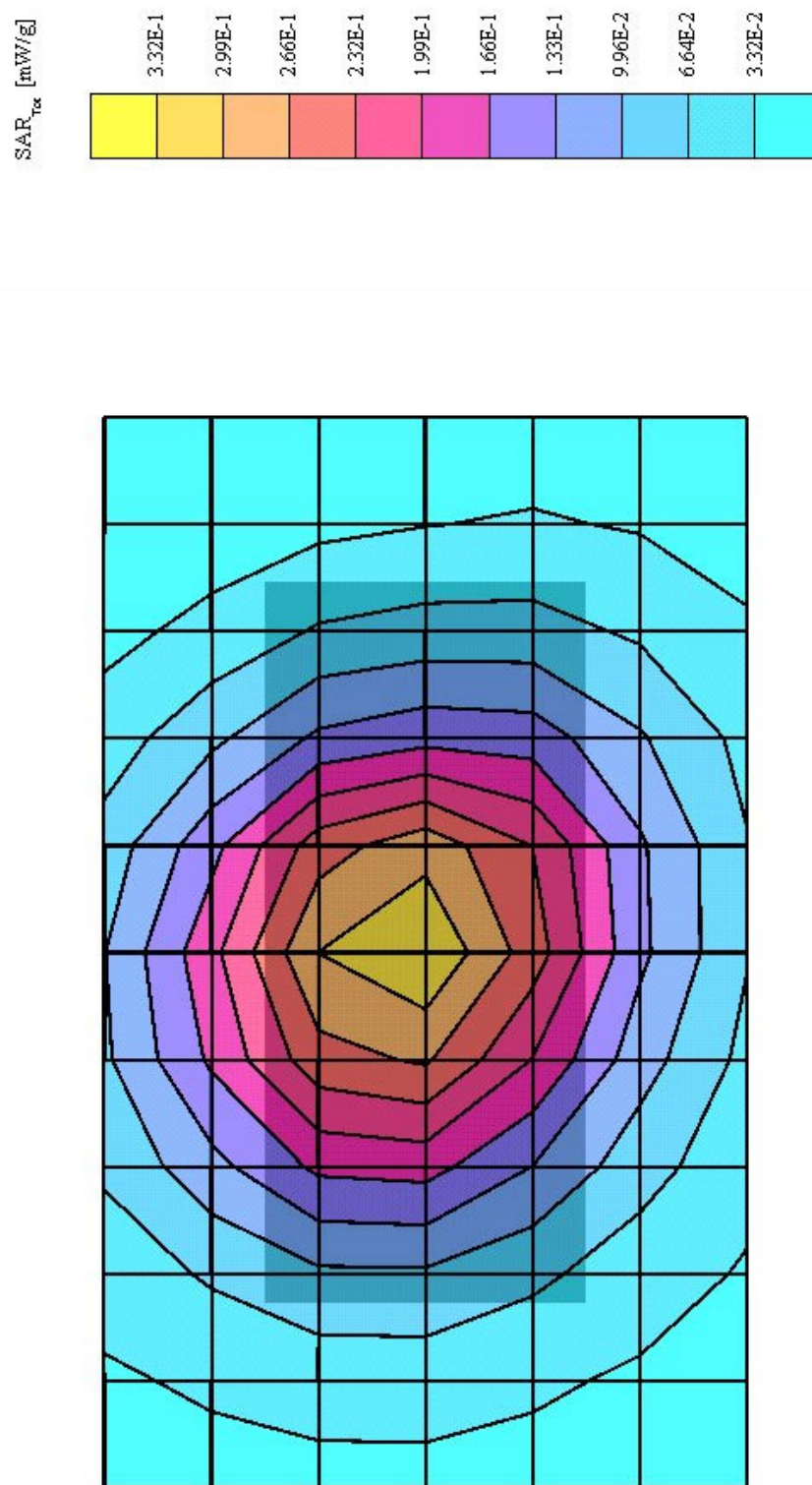


Fig. 16: Worst case SAR distribution, GSM850, channel 190, body worn configuration (Belt Clip without Headset), with Bluetooth transmitter.

3 SAR Distribution Plots, PCS1900

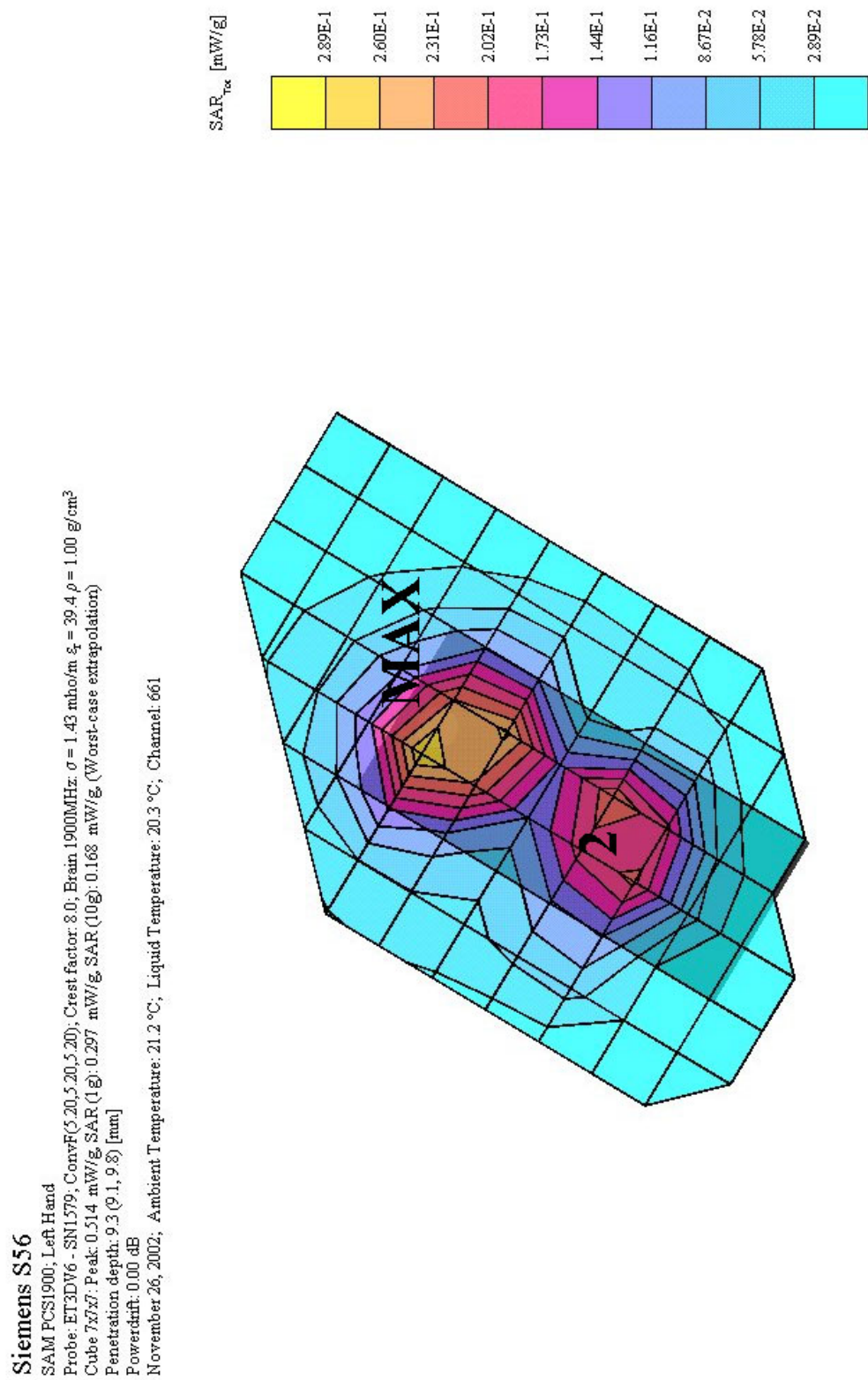


Fig. 17: SAR distribution, PCS1900, channel 661, cheek position, left side of head, Cube 2: 0.247 W/kg.

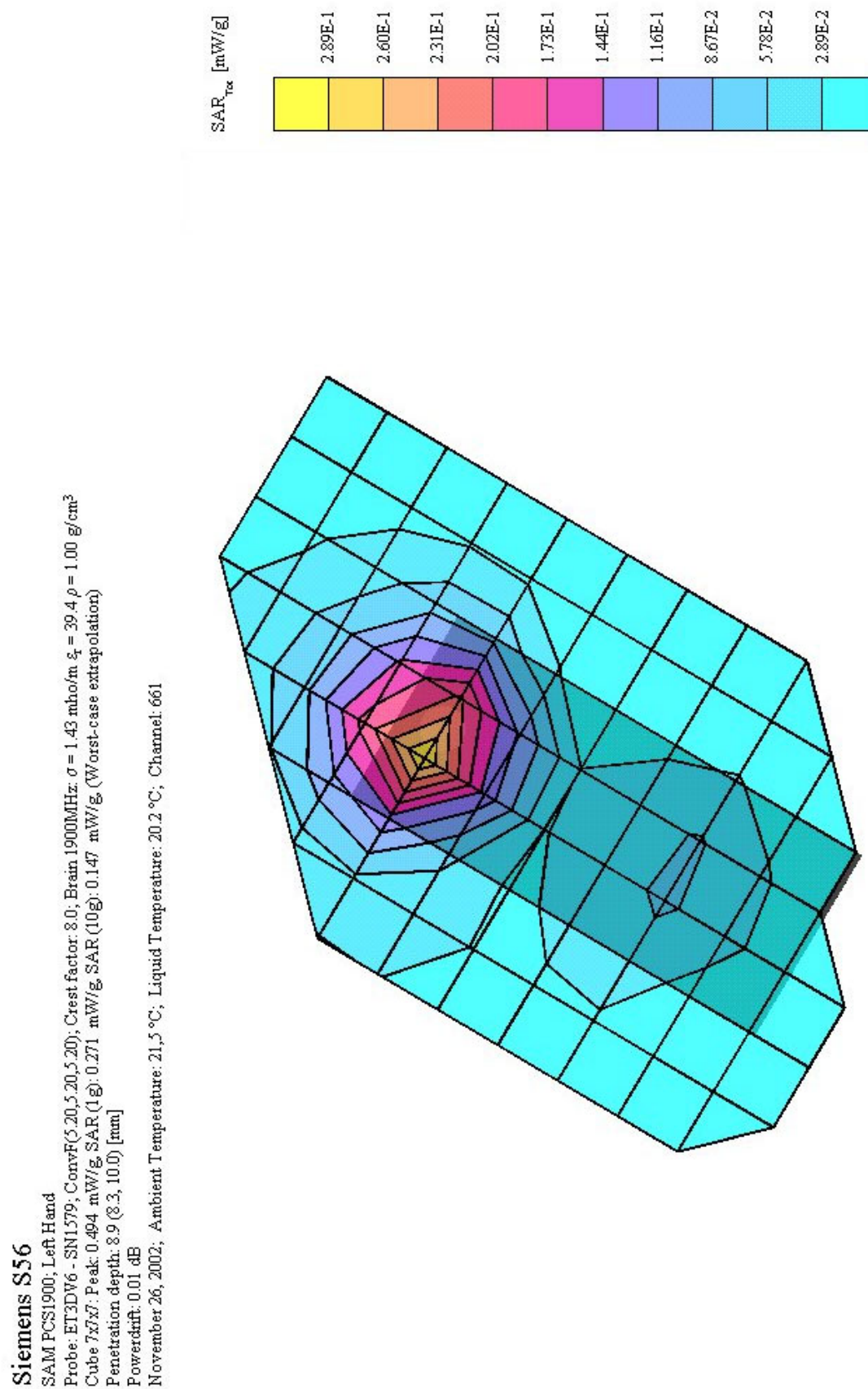


Fig. 18: SAR distribution, PCS1900, channel 661, Tilted position, left side of head.

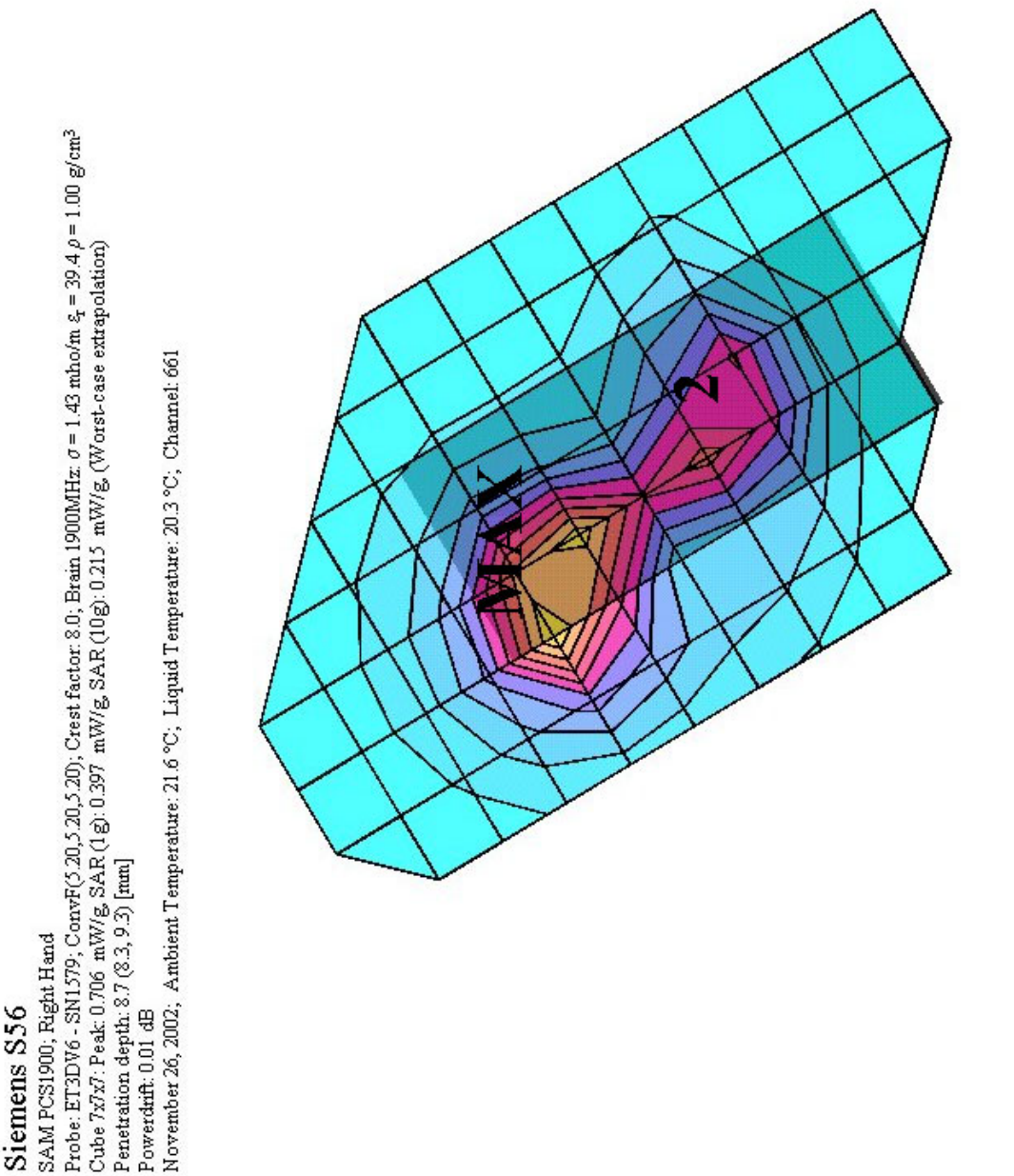


Fig. 19: SAR distribution, PCS1900, channel 661, cheek position, right side of head. Cube 2: 0.272 W/kg.

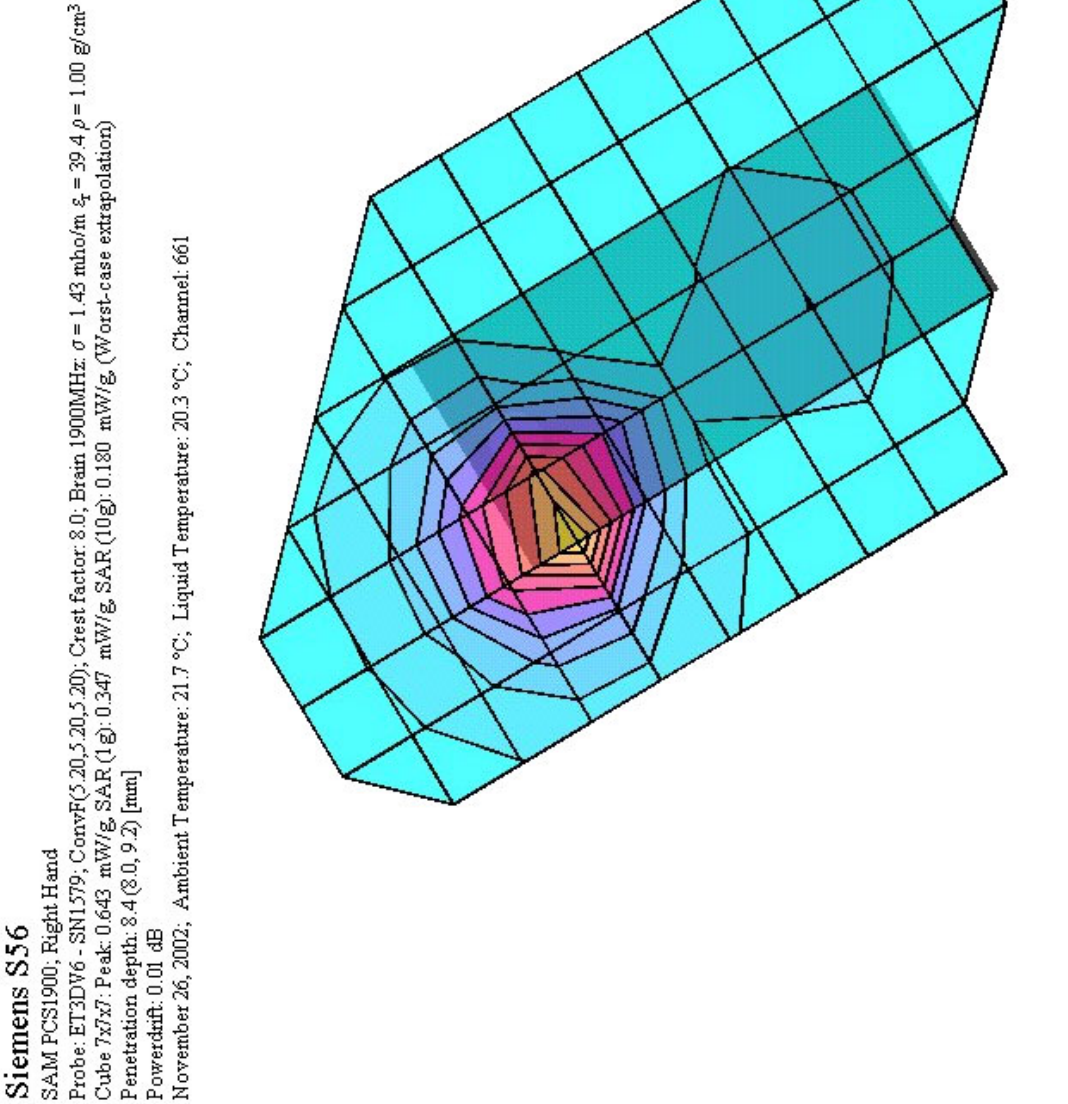


Fig. 20: SAR distribution, PCS1900, channel 661, Tilted position, right side of head.

Siemens S56 + Camera

SAM PCS1900; Left Hand
Probe: ET3DV6 - SN1579; ConvF(5.20,5.20,5.20); Crest factor: 3.0; Brain 1900MHz: $\sigma = 1.43 \text{ mho/m}$ $\epsilon_r = 39.4$ $\rho = 1.00 \text{ g/cm}^3$
Cube 7x7x7: Peak: 0.457 mW/g, SAR (1g): 0.246 mW/g *, SAR (10g): 0.138 mW/g, (Worst-case extrapolation)
Penetration depth: 9.8 (9.1, 10.7) [mm]
Powerdrift: -0.06 dB
November 26, 2002; Ambient Temperature: 21.3 °C; Liquid Temperature: 20.0 °C; Channel: 661

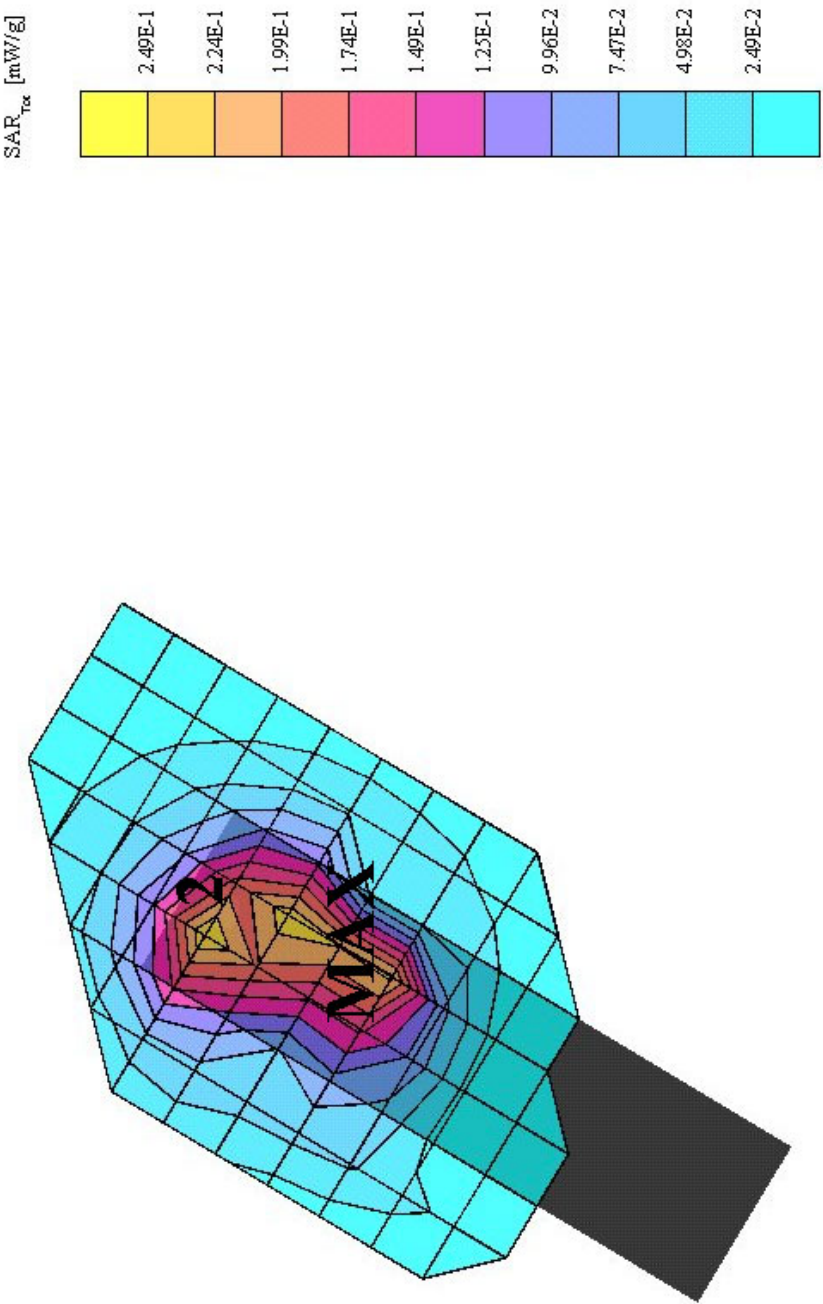


Fig. 21: SAR distribution with QuickPic Camera, PCS1900, channel 661, cheek position, left side of head, Cube 2: 0.245 W/kg.

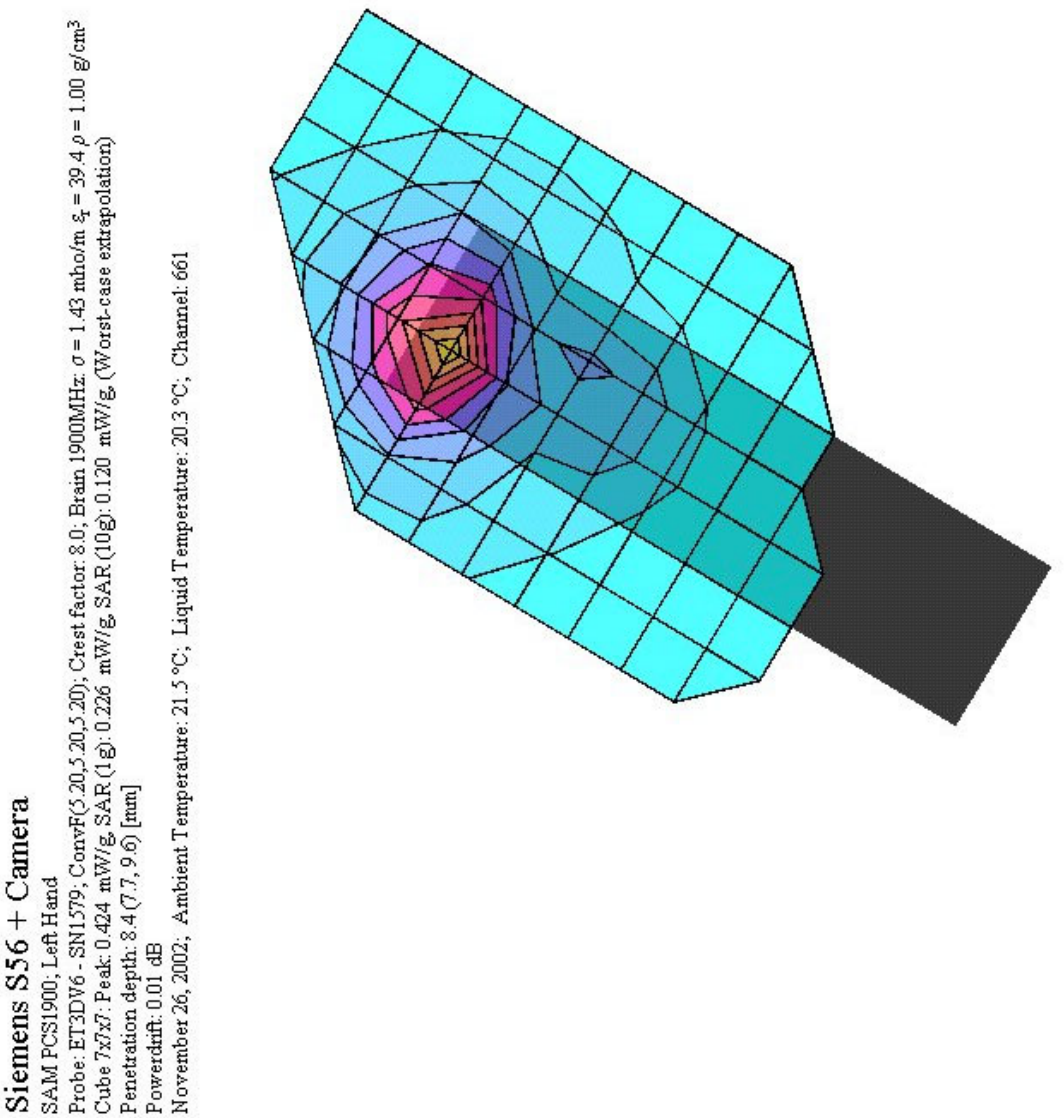


Fig. 22: SAR distribution with QuickPic Camera, PCS1900, channel 661, Tilted position, left side of head.

Siemens S56 + Camera

SAM PCS1900; Right Hand
Probe: ET3DW6 - SIN1579; ConvF(5 20,5 20,5 20); Crest factor: 8.0; Brain:1900MHz: $\sigma = 1.43$ mho/m $\epsilon_r = 39.4$ $\rho = 1.00$ g/cm³
Cube 7x7x7: Peak: 0.622 mW/g, SAR (1 g): 0.333 mW/g, SAR (10 g): 0.179 mW/g, (Worst-case extrapolation)
Penetration depth: 8.1 (7.6, 9.0) [mm]
Powerdrift: 0.01 dB
November 26, 2002; Ambient Temperature: 21.6 °C; Liquid Temperature: 20.3 °C; Channel: 661

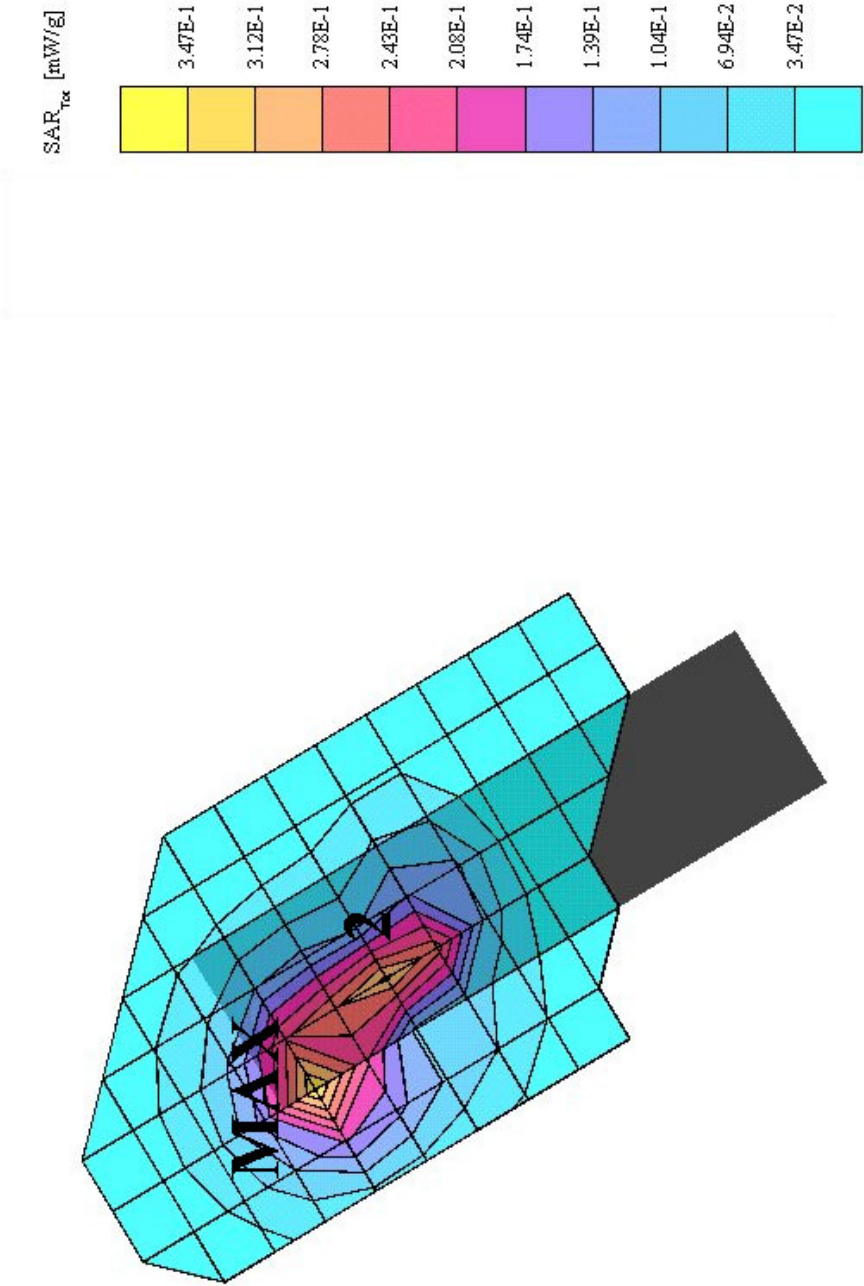


Fig. 23: SAR distribution with QuickPic Camera, PCS1900, channel 661, cheek position, right side of head. Cube 2: 0.299 W/kg.

Siemens S56 + Camera

SAM PCS1900; Right Hand

Probe: ET3DV6 - SN1579; ConvF(5.20,5.20,5.20); Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.43 \text{ mho/m}$ $\epsilon_r = 39.4$ $\rho = 1.00 \text{ g/cm}^3$

Cube 7x7x7: Peak: 0.567 mW/g SAR (1g); 0.295 mW/g SAR (10g); 0.151 mW/g SAR (10g) (Worst-case extrapolation)

Penetration depth: 8.1 (7.6, 9.1) [mm]

Powerdrift: -0.05 dB

November 26, 2002; Ambient Temperature: 21.7 °C; Liquid Temperature: 20.3 °C; Channel: 661

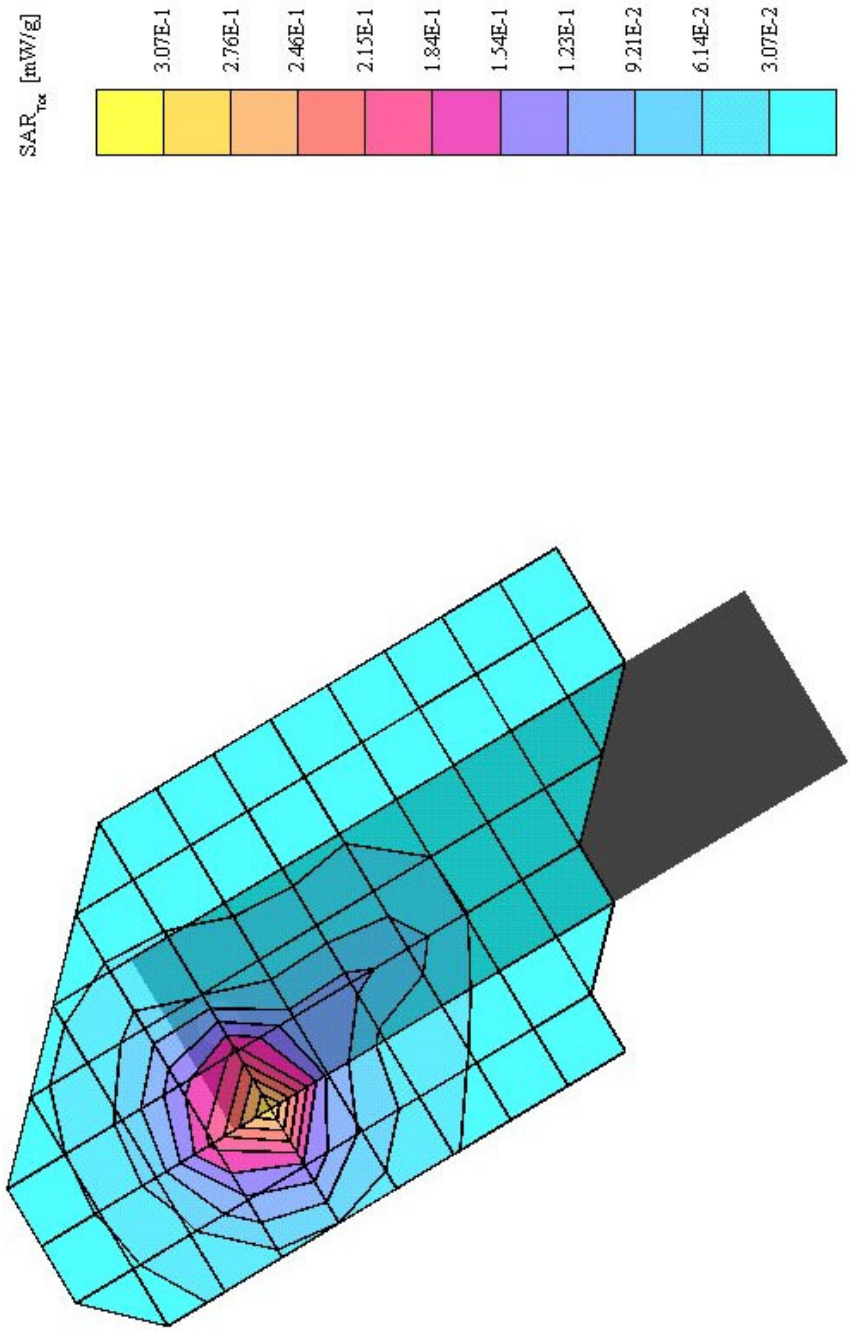


Fig. 24: SAR distribution with QuickPic Camera, PCS1900, channel 661, Tilted position, right side of head.

Siemens S56

SAM PCS1900; Flat

Probe: ET3DW6 - SN1579; ConvF(4.80,4.80,4.80); Crest factor: 8.0; body 1900 MHz: $\sigma = 1.54$ mho/m $\epsilon_r = 51.8$ $\rho = 1.00$ g/cm³

Cube 7x7x7: Peak: 0.360 mW/g SAR (1 g): 0.217 mW/g SAR (10 g): 0.135 mW/g (Worst-case extrapolation)

Penetration depth: 10.8 (9.5, 12.4) [mm]

Powerdrift: 0.04 dB

November 27, 2002; Ambient Temperature: 21.6 °C; Liquid Temperature: 20.2 °C; Channel 661

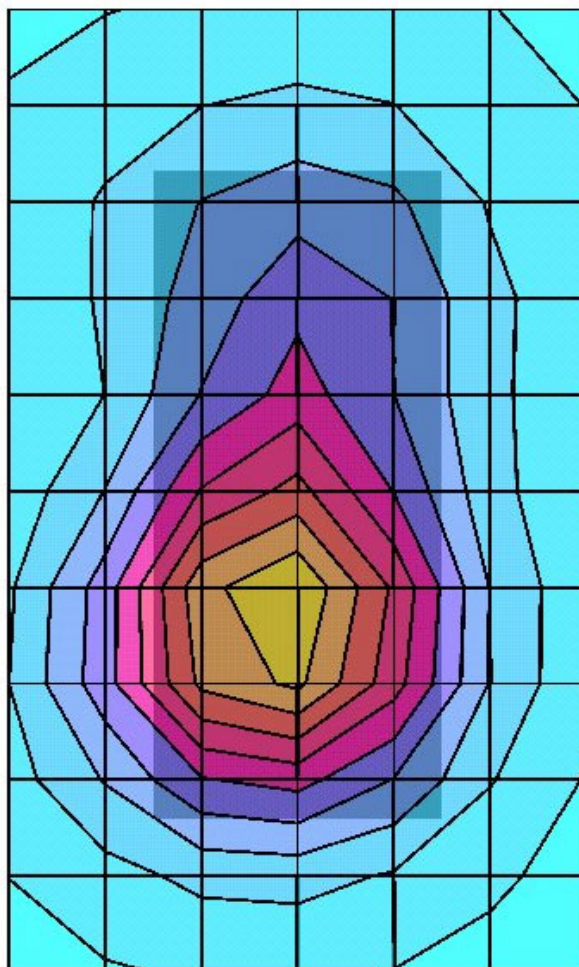


Fig. 25: SAR distribution, GSM1900, channel 661, body worn configuration, Belt Clip without Headset.

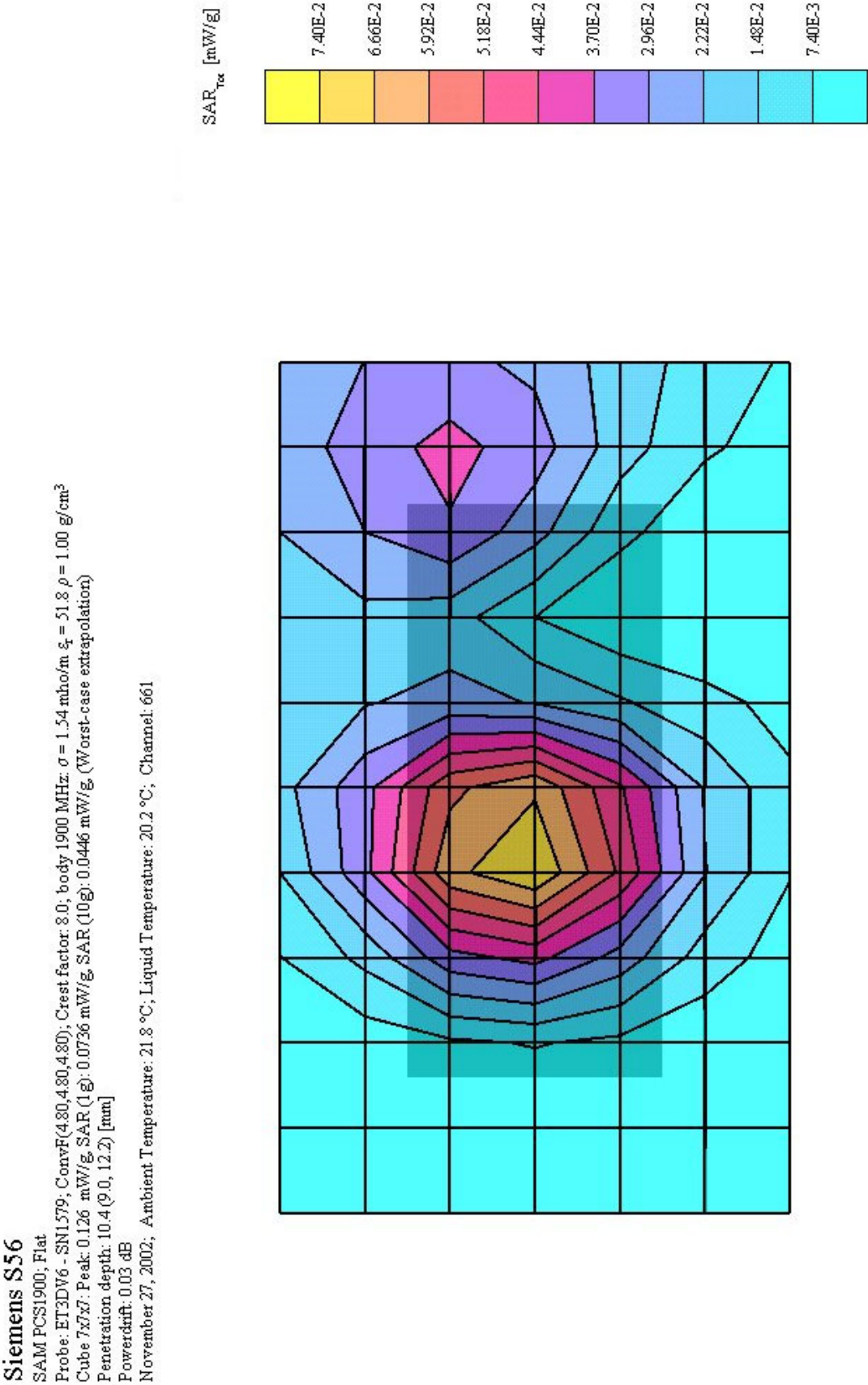


Fig. 26: SAR distribution, GSM1900, channel 661, body worn configuration, Tour Case without Headset.

Siemens S56

SAM PCS1900; Flat

Probe: ET3DV6 - SN1579, ConvF(480,480,480); Crest factor: 8.0; body 1900 MHz: $\sigma = 1.54 \text{ mho/m}$ $\epsilon_r = 51.8$ $\rho = 1.00 \text{ g/cm}^3$

Cube 7x7x7: Peak: 0.201 mW/g, SAR (1 g): 0.121 mW/g, SAR (10g): 0.0759 mW/g (Worst-case extrapolation)

Penetration depth: 10.7 (9.3, 12.6) [mm]

Powerdrift: -0.03 dB

November 27, 2002; Ambient Temperature: 21.9 °C; Liquid Temperature: 20.3 °C; Channel: 661

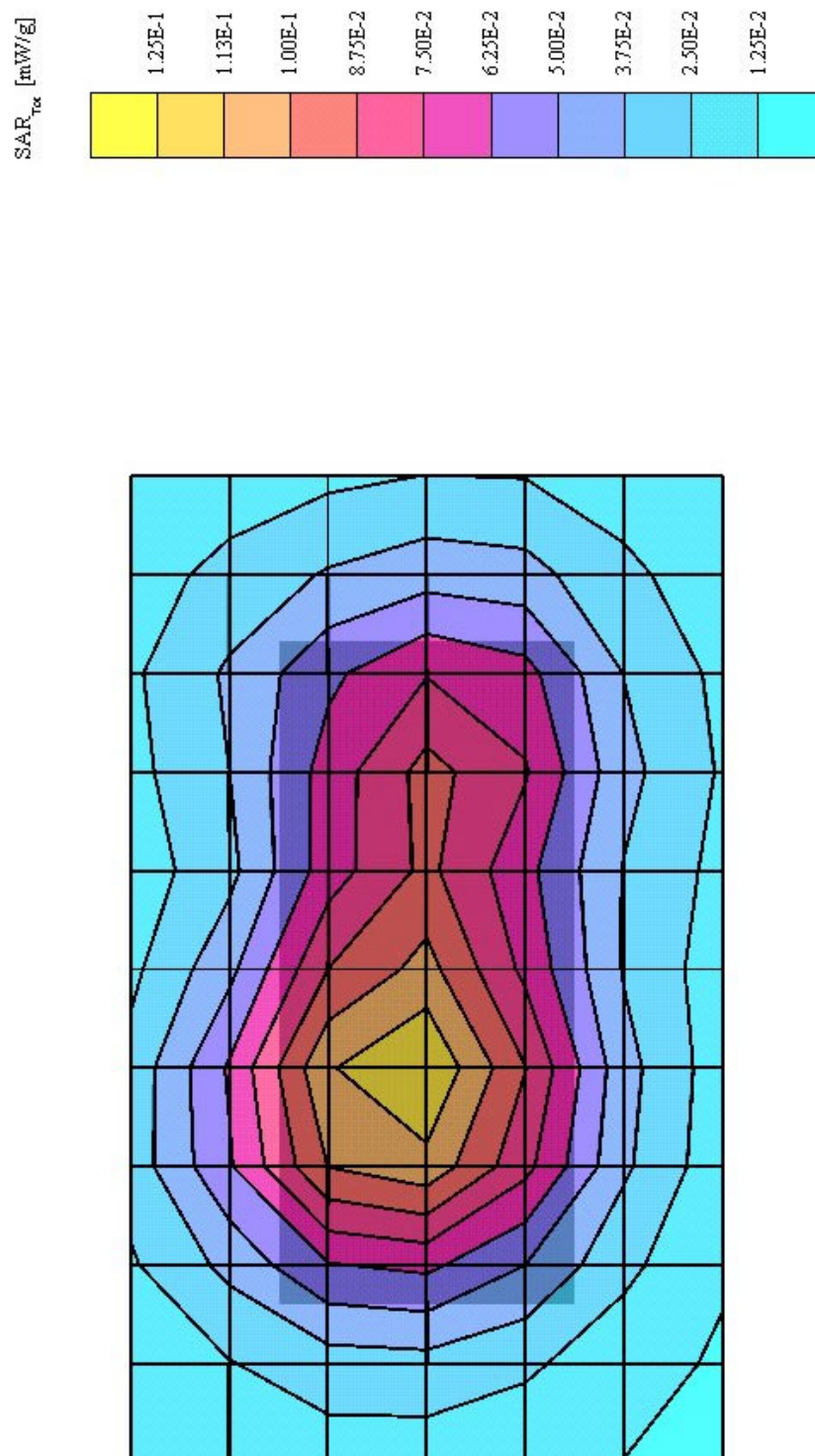


Fig. 27: SAR distribution, GSM1900, channel 661, body worn configuration, Leather Case Display down.

Siemens S56

SAM FCS1900; Flat

Probe: ET3DV6 - SN1579; ConvF(4.80,4.80,4.80); Crest factor: 8.0; body 1900 MHz: $\sigma = 1.54 \text{ mho/m}$, $\epsilon_r = 51.8$, $\rho = 1.00 \text{ g/cm}^3$

Cube 7x7x7; Peak: 0.0828 mW/g, SAR(1 g): 0.0486 mW/g, SAR(10 g): 0.0294 mW/g, SAR(100 g): 0.0294 mW/g, SAR(1000 g): 0.0294 mW/g (Worst-case extrapolation)

Penetration depth: 10.3 (9.2, 11.8) [mm]

Powerdrift: 0.00 dB

November 27, 2002; Ambient Temperature: 21.9 °C; Liquid Temperature: 20.3 °C; Channel: 661

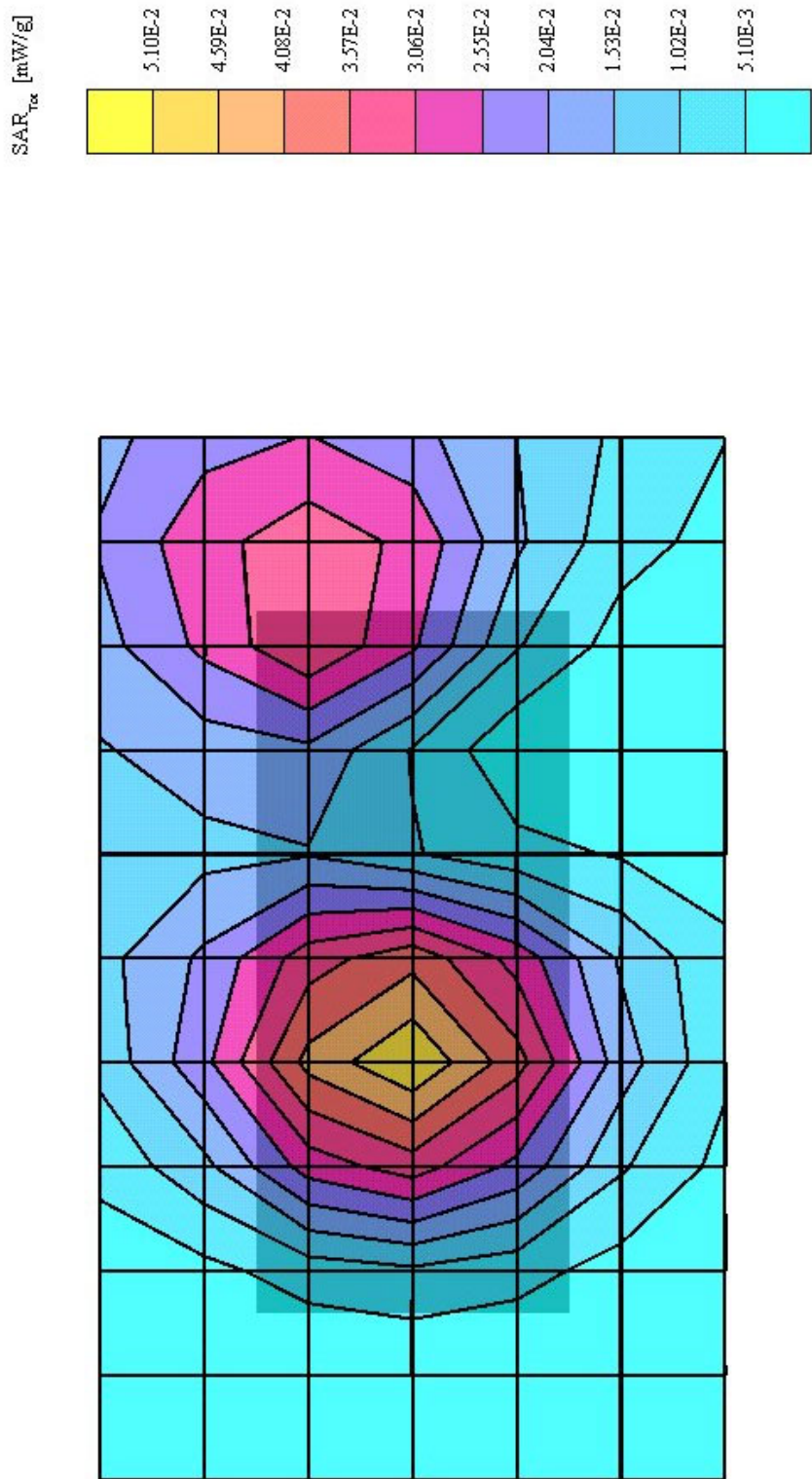


Fig. 28: SAR distribution, GSM1900, channel 661, body worn configuration, Leather Case, Display up.

Siemens S56

SAM PCS1900; Flat

Probe: ET3DV6 - SN1579; ConvF(4.80,4.80,4.80); Crest factor: 8.0; body 1900 MHz: $\sigma = 1.54 \text{ mho/m}$ $\epsilon_r = 51.8$ $\rho = 1.00 \text{ g/cm}^3$

Cube 7x7x7: Peak: 0.346 mW/g, SAR (1 g): 0.208 mW/g, SAR (10g): 0.130 mW/g, (Worst-case extrapolation)

Penetration depth: 10.7 (9.5, 12.4) [mm]

Powerdrift: -0.08 dB

November 27, 2002; Ambient Temperature: 22.0 °C; Liquid Temperature: 20.3 °C; Channel: 661

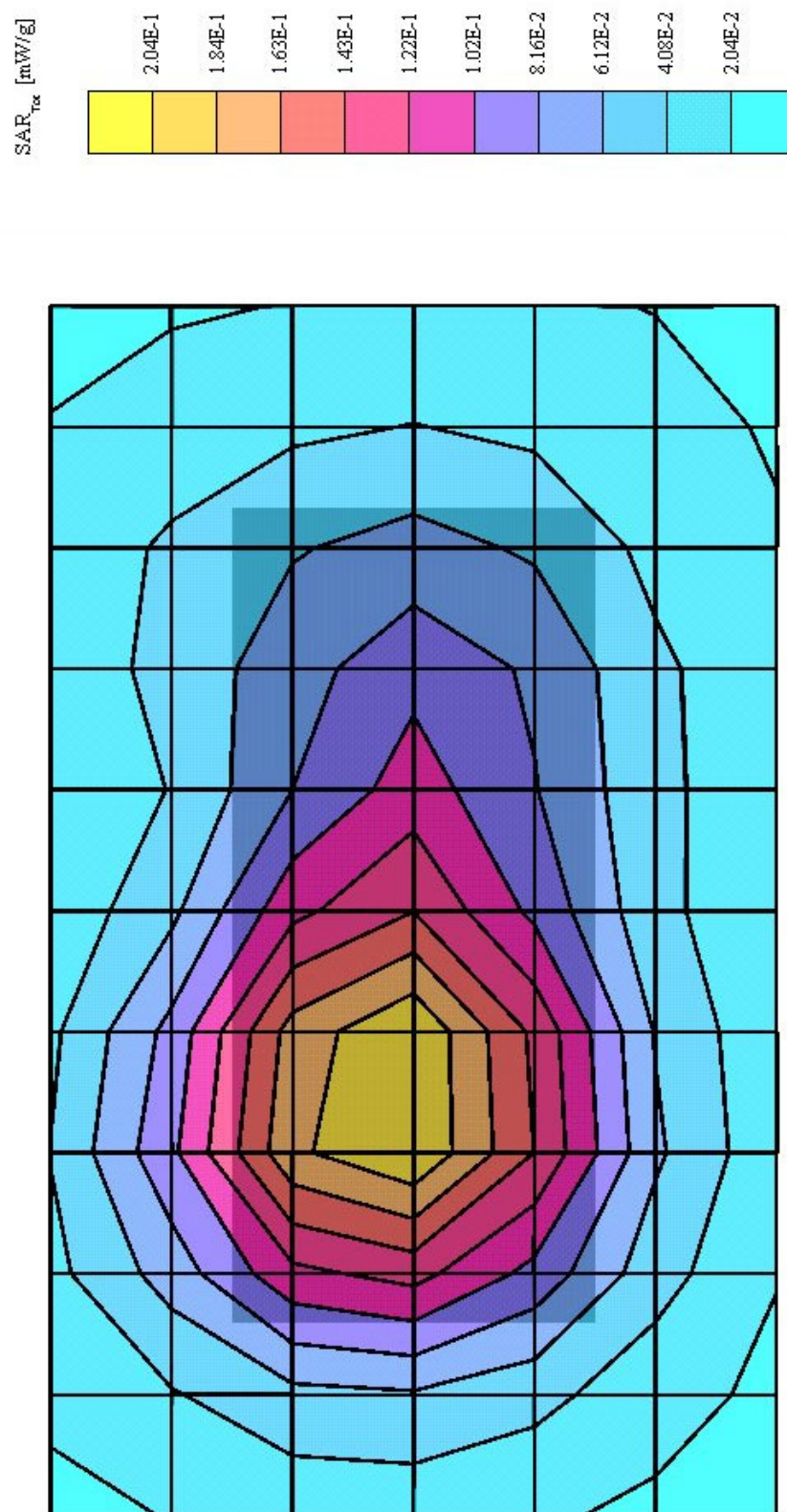


Fig. 29: Worst case SAR distribution, GSM1900, channel 661, body worn configuration (Belt Clip without Headset), with Bluetooth transmitter.

4 SAR z-axis scans (Validation)

The following pictures show the plots of SAR versus liquid depth for the worst case values.

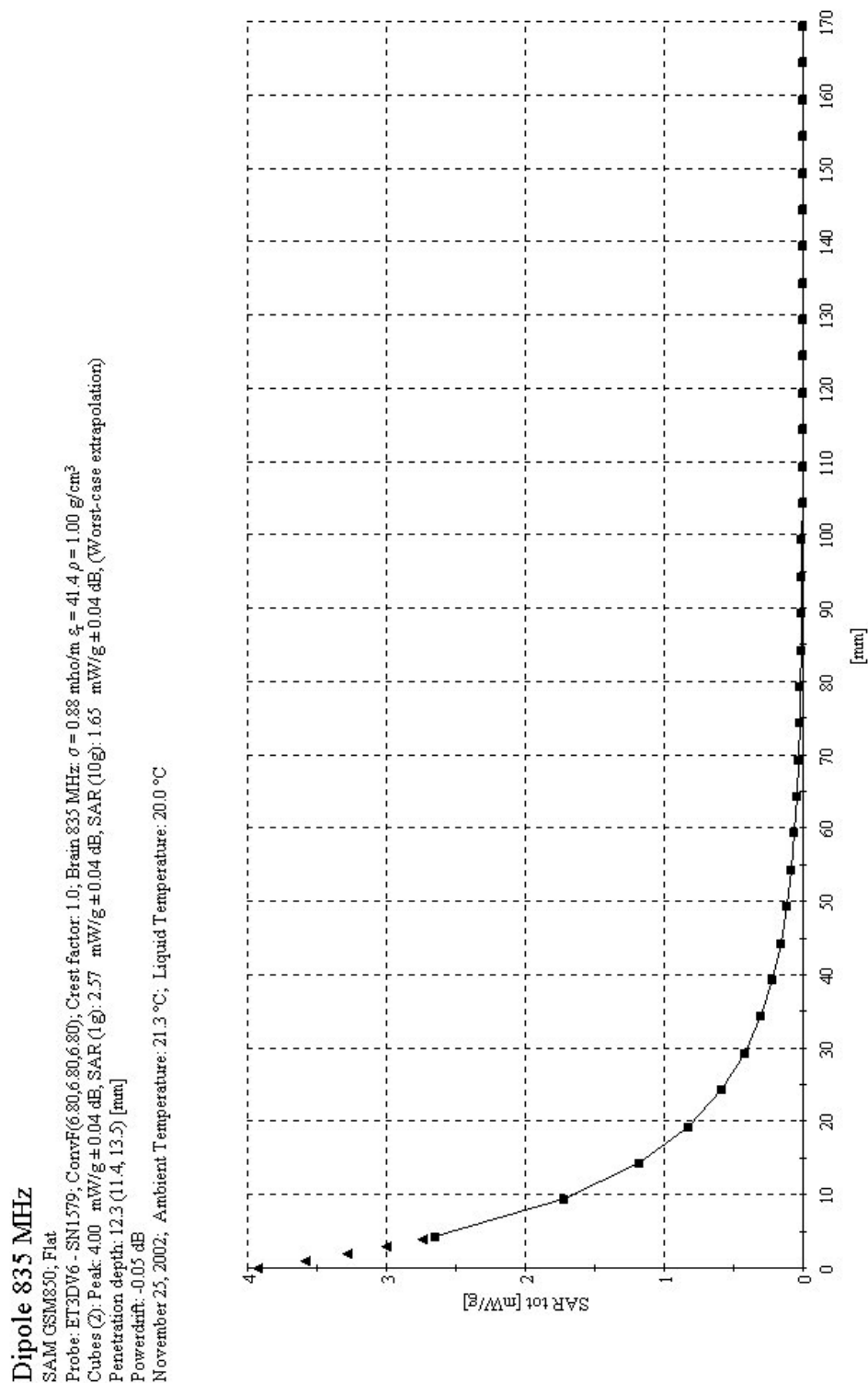


Fig. 30: SAR versus liquid depth, 835 MHz, head.

Dipole 835 MHz

SAM GSM830; Flat

Probe: ET3DV6 - SN1579; ConvF(6.60,6.60); Crest factor: 1.0; body 835 MHz: $\sigma = 1.01$ mho/m $\epsilon_r = 54.3$ $\rho = 1.00$ g/cm³

Cubes (2): Peak: 4.18 mW/g ± 0.06 dB, SAR (1g): 2.66 mW/g ± 0.05 dB, SAR (10g): 1.69 mW/g ± 0.05 dB, (Worst-case extrapolation)

Penetration depth: 12.0 (11.1, 13.3) [mm]

Powerdift: -0.02 dB

November 29, 2002; Ambient Temperature: 21.2 °C; Liquid Temperature: 20.3 °C

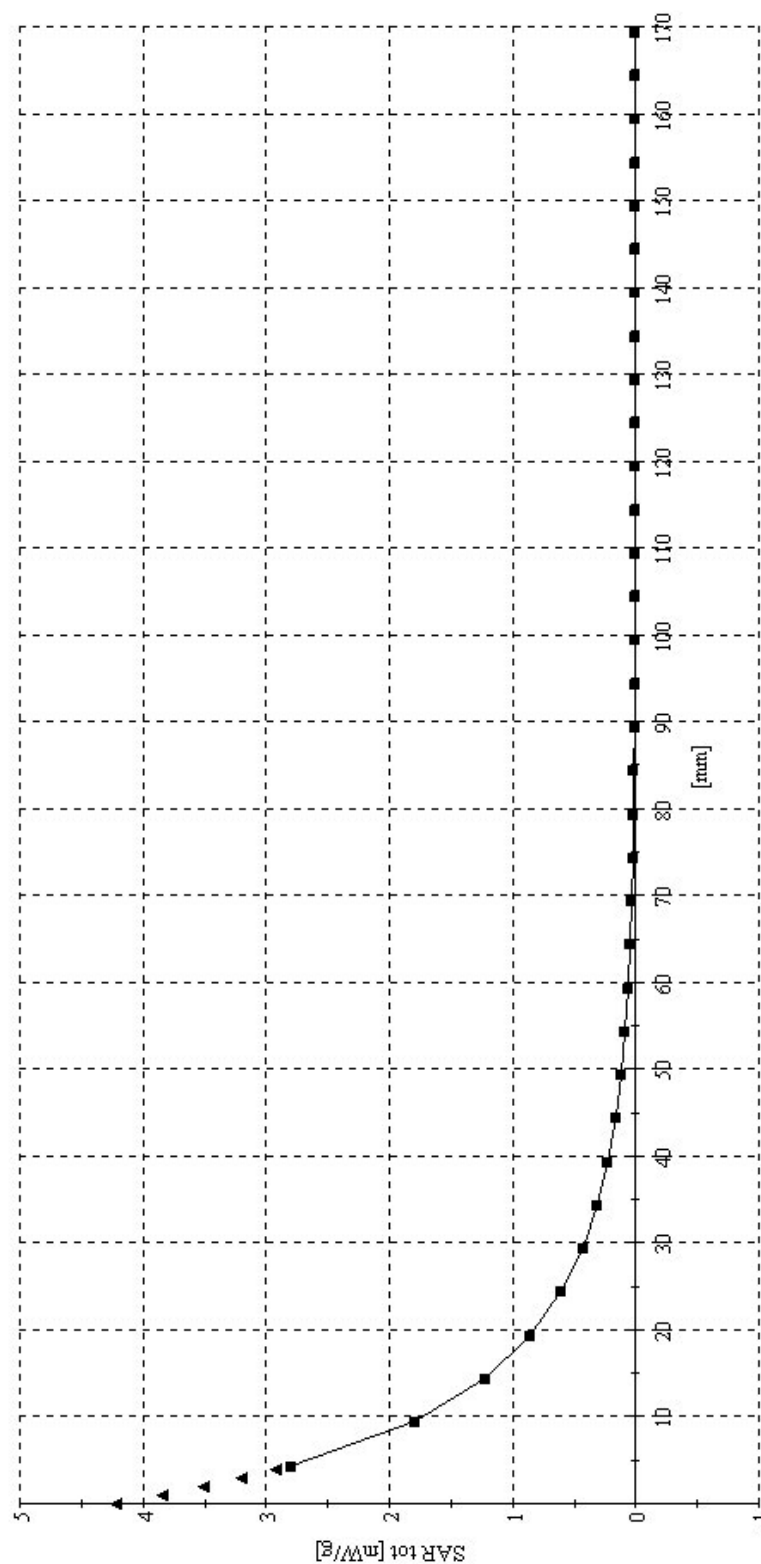


Fig. 31: SAR versus liquid depth, 835 MHz, body.

Dipole 1900 MHz
SAM PCS1900; Flat
Probe: ET3DV6 - SN1579; ConvF(5.20,5.20,5.20); Crest factor: 1.0; Brain 1900MHz: $\sigma = 1.43 \text{ mho/m}$, $\epsilon_r = 39.4$, $\rho = 1.00 \text{ g/cm}^3$
Cubes (2): Peak: $20.7 \text{ mW/g} \pm 0.09 \text{ dB}$, SAR (1g): $10.8 \text{ mW/g} \pm 0.08 \text{ dB}$, SAR (10g): $5.47 \text{ mW/g} \pm 0.07 \text{ dB}$, (Worst-case extrapolation)
Penetration depth: $7.7 (7.3, 8.7) \text{ [mm]}$
Powerdft: -0.05 dB
November 26, 2002; Ambient Temperature: 21.3°C ; Liquid Temperature: 20.4°C

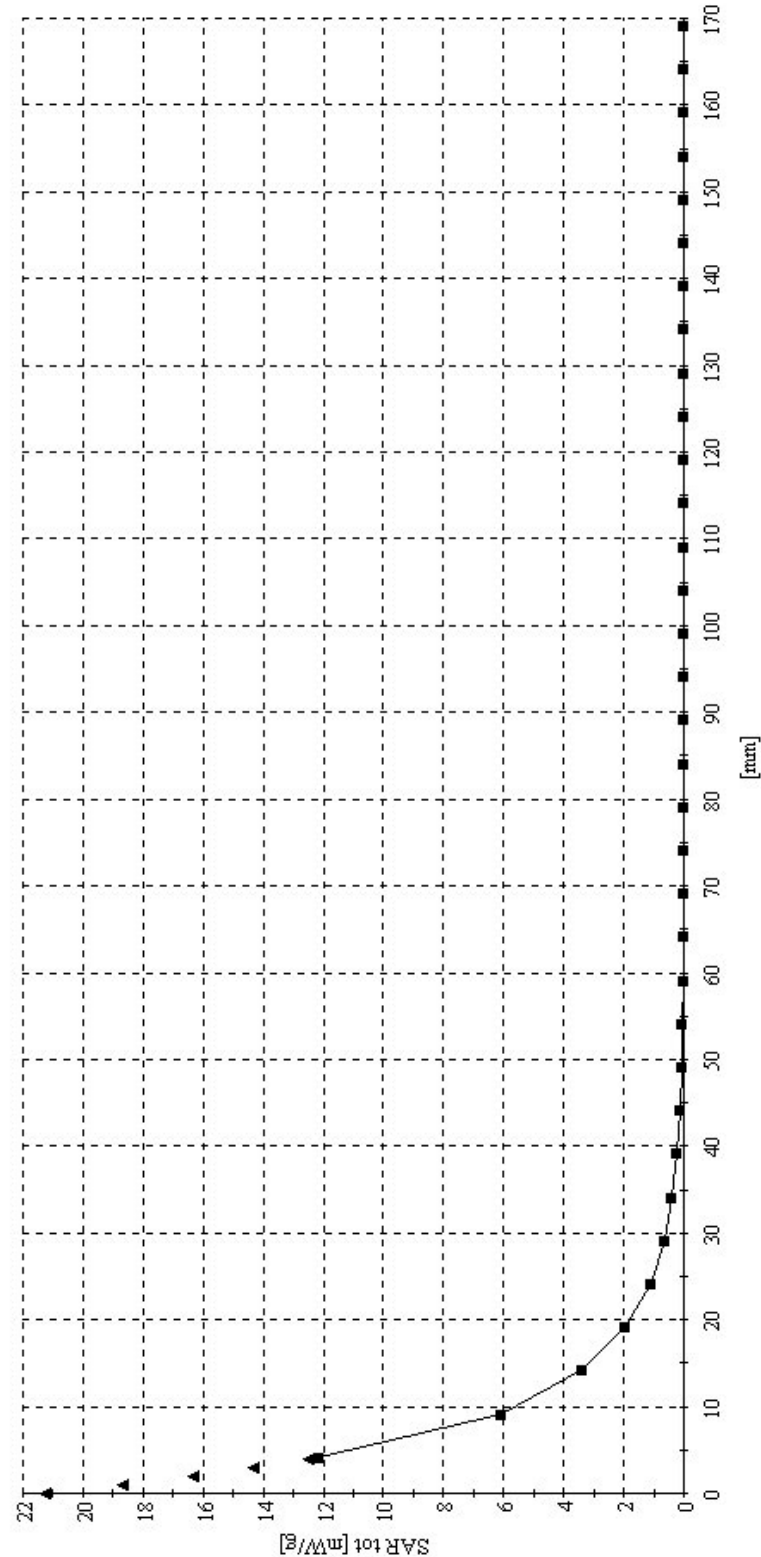


Fig. 32: SAR versus liquid depth, 1900 MHz, head.

Dipole 1900 MHz
SAM PCS1900; Flat
Probe: ET3DVG - SN1579; ConvF(480,480,480); Crest factor: 1.0; body 1900 MHz: $\sigma = 1.54 \text{ mho/m}$ $\epsilon_r = 51.8$ $\rho = 1.00 \text{ g/cm}^3$
Cubes (2): Peak: $20.6 \text{ mW/g} \pm 0.06 \text{ dB}$, SAR (1g): $10.8 \text{ mW/g} \pm 0.06 \text{ dB}$, SAR (10g): $5.52 \text{ mW/g} \pm 0.06 \text{ dB}$, (Worst-case extrapolation)
Penetration depth: $8.3 (7.6, 9.5) [\text{mm}]$
Powerdrift: -0.04 dB
November 27, 2002; Ambient Temperature: 21.1°C ; Liquid Temperature: 20.3°C

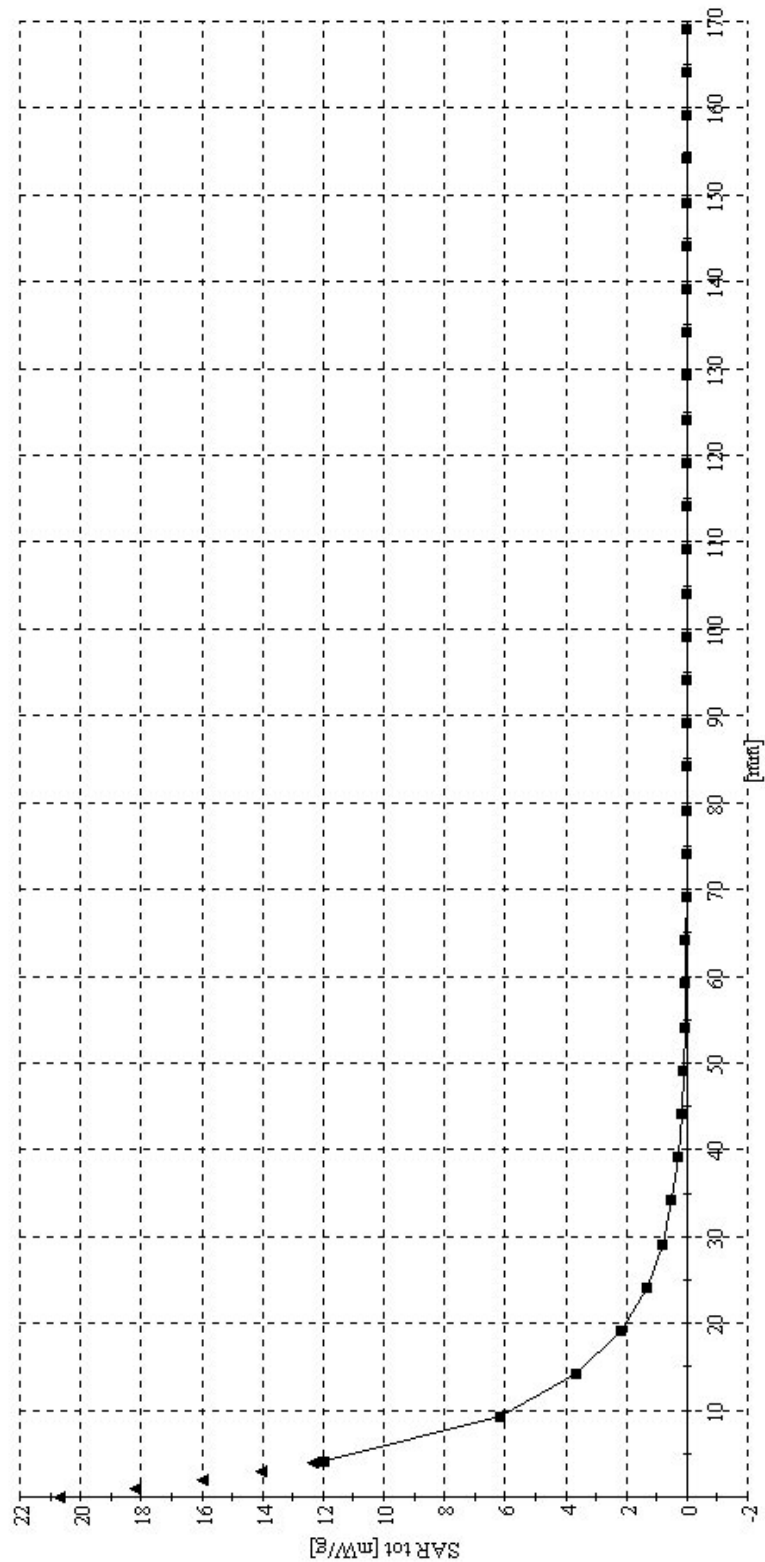


Fig. 33: SAR versus liquid depth, 1900 MHz, body

5 SAR z-axis scans (Measurements)

The following pictures show the plots of SAR versus liquid depth for the worst case values.

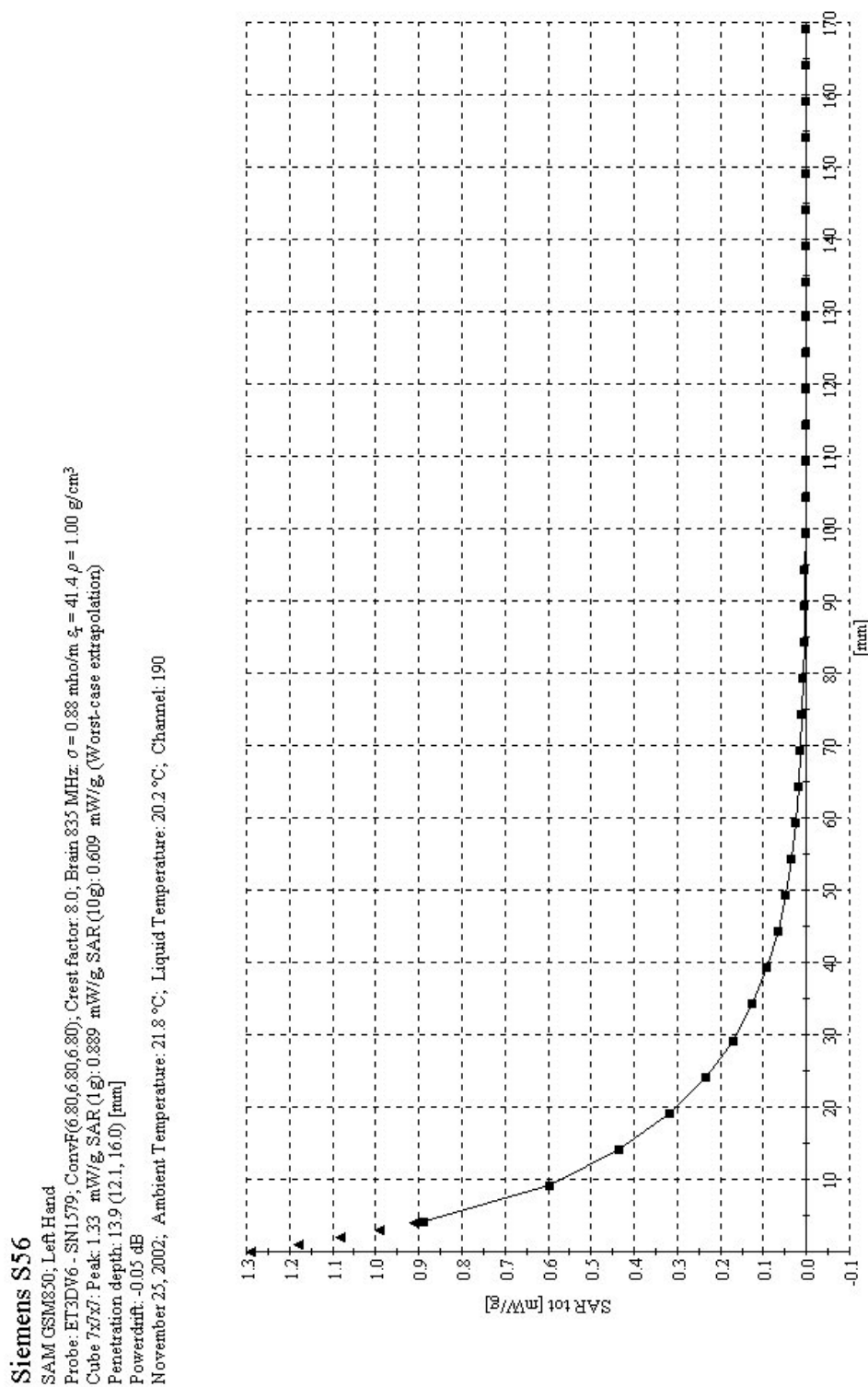


Fig. 34: SAR versus liquid depth, GSM850, channel 190, cheek position, left side of head.

Siemens S56

SAM GSM850; Flat

Probe: ET3DV6 - SN1579; ConvF(6.60,6.60,6.60); Crest factor: 8.0; body 835 MHz: $\sigma = 1.01$ mho/m $\epsilon_r = 54.3$ $\rho = 1.00$ g/cm³

Cube 7x7x7: Peak: 0.467 mW/g, SAR (1 g): 0.324 mW/g, SAR (10g): 0.225 mW/g, (Worst-case extrapolation)

Penetration depth: 15.1 (14.2, 16.1) [mm]

Powerdrift: -0.05 dB

November 29, 2002; Ambient Temperature: 21.5 °C; Liquid Temperature: 20.3 °C; Channel: 190

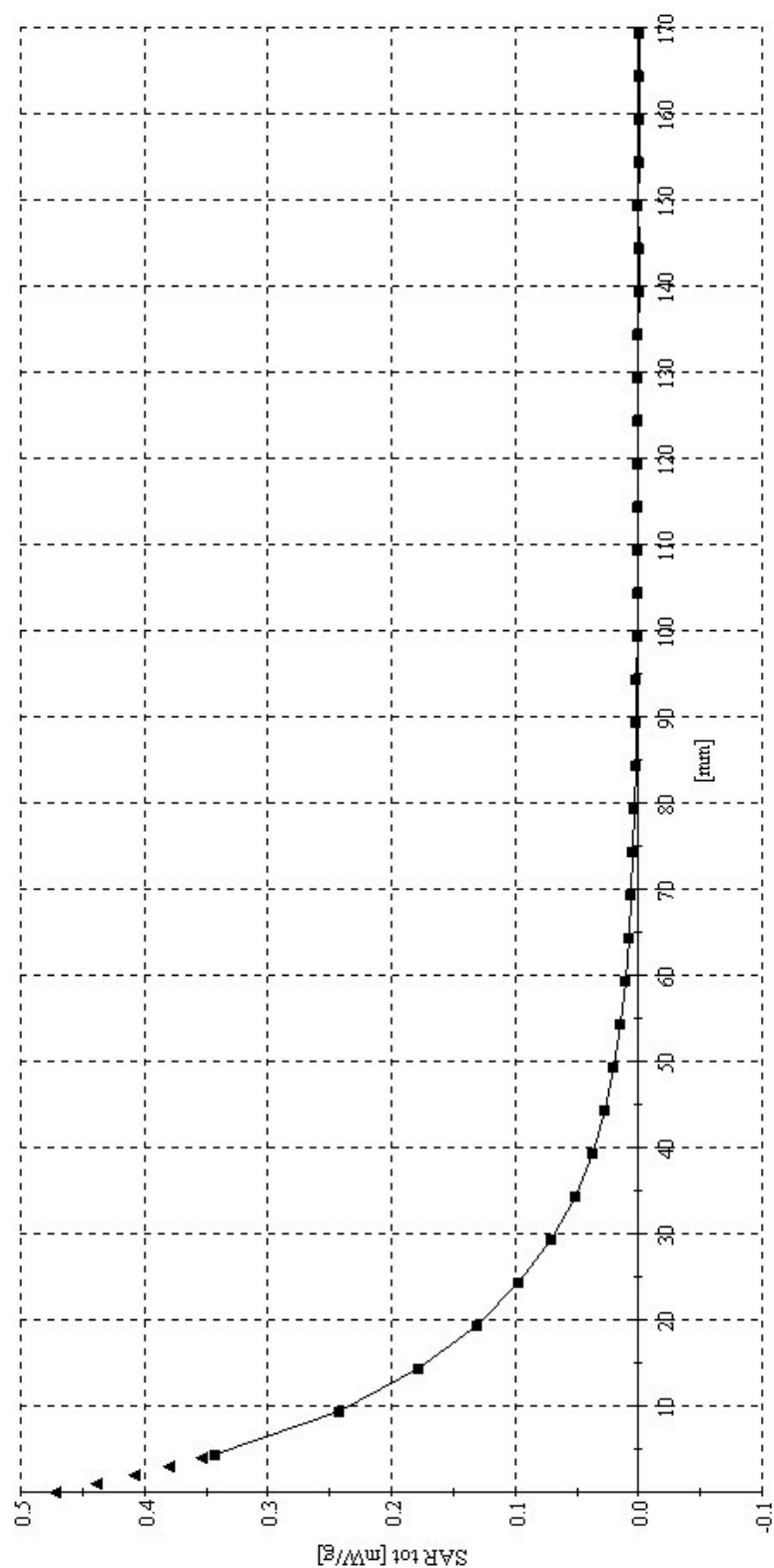


Fig. 35: SAR versus liquid depth, GSM850, channel 190, body worn configuration, Belt Clip without Headset.

Siemens S56

SAM PCS1900; Right Hand

Probe: ET3DV6 - SN1579; ConvF(5.20,5.20); Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.43$ mho/m $\epsilon_r = 39.4$ $\rho = 1.00$ g/cm³

Cube 7x7x7: Peak: 0.706 mW/g SAR (1g): 0.397 mW/g SAR (10g): 0.215 mW/g (Worst-case extrapolation)

Penetration depth: 8.5 (7.9, 9.5) [mm]

Powerdrift: 0.01 dB

November 26, 2002; Ambient Temperature: 21.6 °C; Liquid Temperature: 20.3 °C; Channel: 661

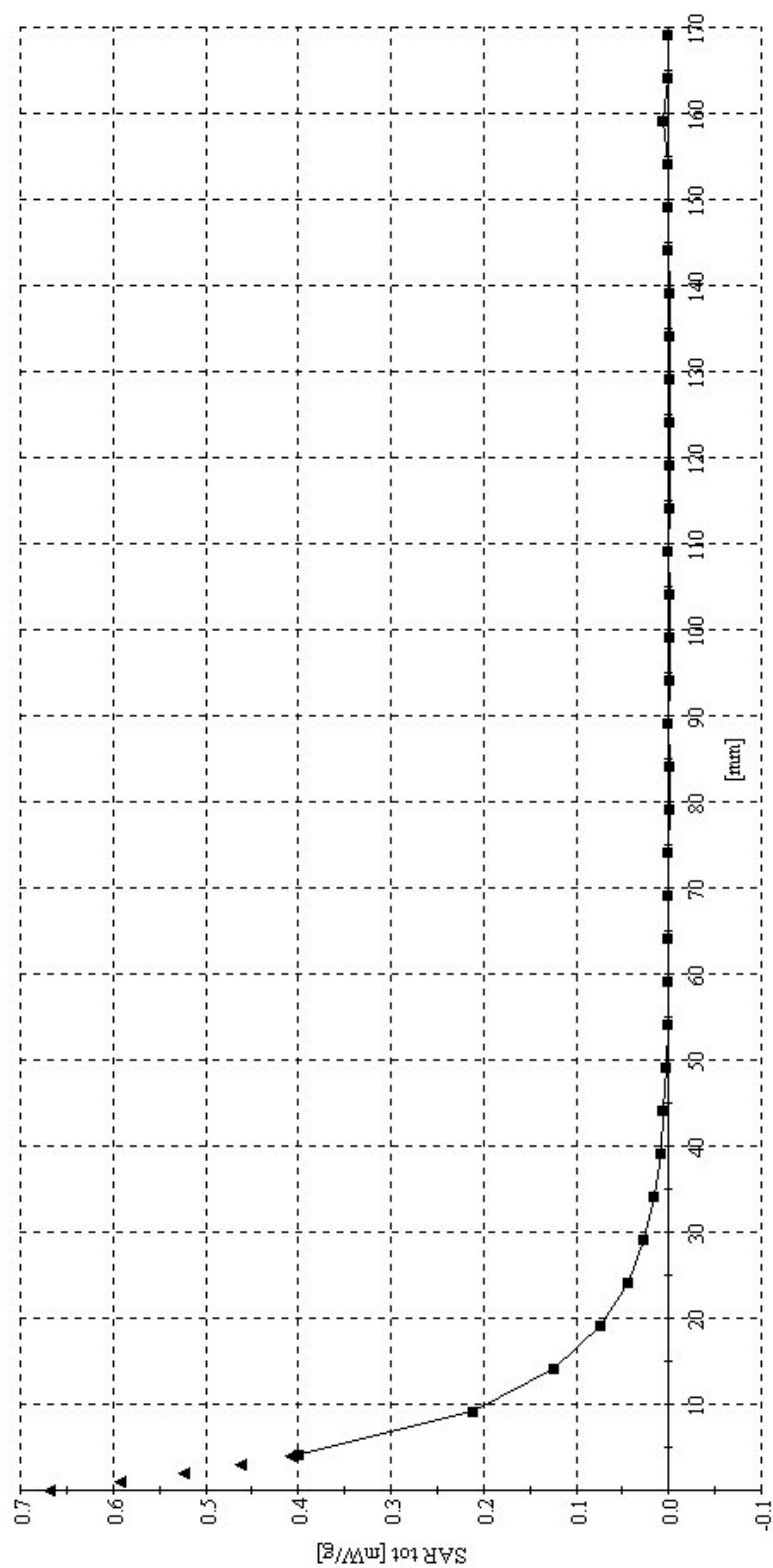


Fig. 36: SAR versus liquid depth, PCS1900, channel 661, cheek position, right side of head.

Siemens S56
SAM PCS1900; Flat
Probe: ET3DW6 - SN1579; ConvF(480,480,480); Crest factor: 8.0; body 1900 MHz: $\sigma = 1.54 \text{ mho/m}$ $\epsilon_r = 51.8$ $\rho = 1.00 \text{ g/cm}^3$
Cube 7x7x7: Peak: 0.360 mW/g, SAR (1 g): 0.217 mW/g, SAR (10g): 0.135 mW/g (Worst-case extrapolation)
Penetration depth: 10.8 (9.5, 12.5) [mm]
Powerdift: 0.04 dB
November 27, 2002; Ambient Temperature: 21.6 °C; Liquid Temperature: 20.2 °C; Channel 661

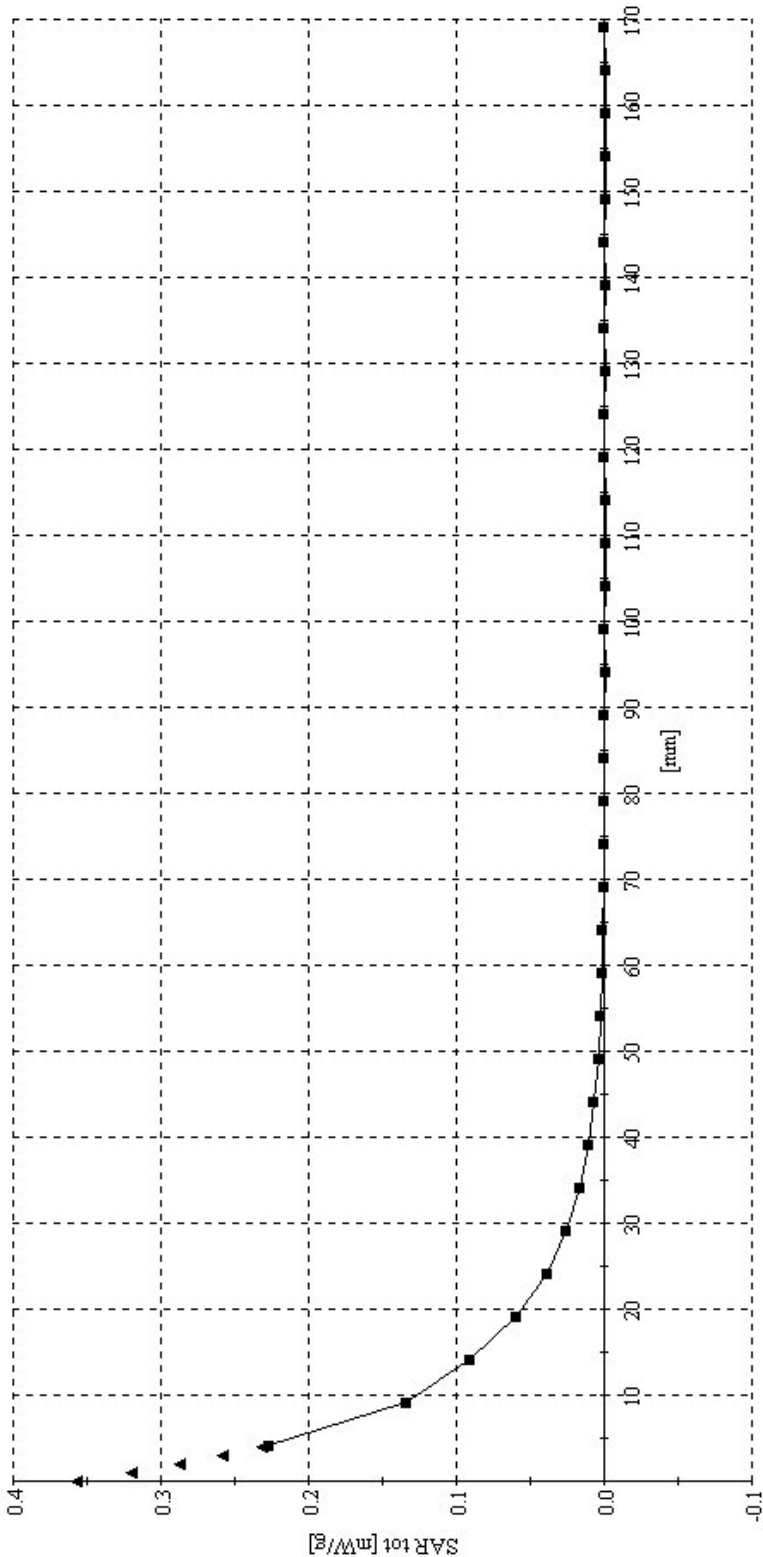


Fig. 37: SAR versus liquid depth, PCS1900, channel 661, body worn configuration, Belt Clip without Headset.